

A Study of Lexical Diffusion in Korean*

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To sum up the result of this quantitative investigation to the Neogrammarian controversy in a study of lexical diffusion in Korean, we could point out two findings. The first is that as we will see in section 2, lexical items change not to a single reflex but often to a group of diverse reflexes. Language change often include stages of variants of different quantity appearing gradually and unifying into one final form. Such would be what we would like to describe in lexical diffusion. The second is that as we can see in examples in section 2, the orthography in many cases are hypercorrections imitating earlier forms, which therefore is often removed from actual pronunciation. This is especially common in section 3 where we have seen that the orthography in the variants that have been classified as being counter to the rule is so detached from the actual pronunciation that it is difficult to capture the main current of the change. But such phenomena should not be regarded as being in conflict with the theory of change by lexical diffusion. The reason is that the theory of lexical diffusion was proposed to mend the contradiction in the Neogrammarian thesis that change occurs abruptly without exception. Data with such counter-examples are therefore more appropriate for testing the theory.

1. Introduction

1.1. The Purpose of This Research

The purpose of this research is to look into how the results of phonological and morphological changes between 15th century and the late 19th century in Korean are reflected in individual lexical items. It is thus natural that our discussion will be based on quantitative investigation of

*The author wishes to acknowledge the financial support of Korea Research Foundation made in the program year of 1998. Thanks are due to many who helped me in this process, especially to Professor William S. Wang and Dr. Kyung-Ah Kim who have been the main supporters of this investigation.

texts and proceed with scrutiny of textual evidence.

The theoretical basis of our discussion is the theory of lexical diffusion proposed by William S. Wang in 1969 and a series of discussions (Chen & Wang 1975, Hsieh 1977, Krishnamurthy 1978, Bauer 1979) that followed thereafter. His theory of a phonological rule gradually diffusing across lexicon denies the Neogrammarian hypothesis of exceptionless regularity in full, which says that the phonetic change may occur abruptly but the implementation of such a change to affect all the lexical items in the lexicon occurs gradually. Although there are other discussions known as the Neogrammarian controversy (Labov 1981, Hock 1986, Kiparsky 1988, Harris 1989, Pandey 1997), Wang's theory has gained solid support and from the 1980's the research under his theory came to include not only phonological changes but also morphological and syntactic phenomena (Wang & Lien 1993). This research is designed to precisely investigate the relationship between lexical diffusion and the word frequency. The result of our research will be able to re-evaluate the theory of lexical diffusion and add some constructive aspect in the theory.

Our investigation has many limitations and problems because as mentioned above we have to look at an enormous amount of textual records from the 15th to the late 19th century. To alleviate our load of work and to make our calculation of word frequency more precise, the following work has limited its investigation to adverbs.

The investigated texts included all the records from *hunminjŏngŭm* in 1447 to the New Testament translated into Korean in 1900, all together 408 volumes. Since the amount of the records to be examined is enormous, it should be kept in mind that there are bound to be some errors, but they are not serious enough to keep us from looking at the overall pattern of lexical diffusion. (cf. the list of texts and the periodically classified amounts of textual records that appear below)

Research of this kind, being based on surface computerized orthographic data, may contain precise measurement of the topic, but it may not carry deep enough interpretation of the data. For example, the vowel Λ , due to the conservative nature of orthography, may not manifest itself in the period it is used. Or the textual records themselves may not remain evenly distributed in terms of the areas and periods being investigated. Furthermore, not all the texts have been computerized. I only would like to add that the data collected here is based on as many textual records as

possibly be selected at present from the computerized corpus.

There are all together 158 adverbs that have been classified in <section 2>. These adverbs have various 'allo-forms' of which the most frequently appearing has been chosen to represent the word. In <section 3>, we deduce many sound changes in vowels and consonants from the tables that show the periodic classification of adverbs in <section 2>.

2. Chronological Lists of Adverb Frequency in Korean

This research will look at how lexical diffusion is gradually implemented by investigating word frequency of adverbs in successive historical periods. The adverbs have been chosen as the data safely representing Korean in general because 1) unlike the nouns and verbs they are free from declension or conjugation in Korean, and 2) as such they will show more clearly the process of lexical diffusion at work.

The followings are the examples among adverbs that show relatively diverse orthographic forms. Each orthographic form shows the year that it first appeared in text and (if available) the year it was recorded the last time in the history of Korean. The numbers in parenthesis indicate the frequency of each form during the period it appeared.

The lexical items in this chapter have been arranged according to the order of Korean alphabet ㄱ(k), ㄴ(n), ㄷ(t), etc. Among the vowels, the so called lower a [ʌ] comes at the very end. In this chapter below, words that have fewer than three appearances were given their year of appearance without using '--'. Data with a occurrence marked by zero such as kakkai가까이 (0) are shown because they are basic or importantly referring forms in the present-day.

▼kaontay가온디(kaunteygawunde)▼1 within, midst

	15c	16c	17c	18c	19c
kaβantay가온디 (2)	1459				
kaontay가온디 (605)	1447	————— 1900			
kaonti가온디 (1)	1489				
kaontay가온대 (345)	1481	————— 1895			
kaunteygawonde (8)				1797	1887
kaontiy가온디 (2)			1617, 1632		

▼kaskai갓가이(kakkai가까이)▼2 near, soon

	15c	16c	17c	18c	19c
kaskaβiga까비 (1)	1459				
kaskaβiga갓비 (18)	1447—1459				

kaskai갓가이 (163)	1461	—————	1900
kaskahi갓가히 (34)			1881—1900
kakkai가카이 (0)			

▼kaskolo갓고로(kekulo거꾸로)▼3 upside down

	15c	16c	17c	18c	19c
kaskalo갓ㄱ로 (30)	1459	—————	1632		
kaskolo갓고로 (33)	1447	—————	1795		
kesskulo갓꾸로 (1)		1576			
keskulo갓구로 (4)				1741—1795	
keskule갓구러 (2)				1792	
keskulu갓구루 (2)				1792,	1876
keskalo갓ㄱ로 (2)					1869

▼kyeyyo계요(kyeu겨우)▼4 barely

	15c	16c	17c	18c	19c
kyeyu계우 (24)		1500	—————	1883	
kyeyyu계유 (30)			1617	1796,	1876
kyeyo계오 (18)		1517	—————	1796	
kyeyyo계요 (55)		1586	—————	1797	
kyeyu겨유 (23)			1600	—————	1852
kyeyo겨요 (17)			1600	1797	
kyeu겨우 (3)					1881—1900

▼koyloi괴로이▼5 painfully

	15c	16c	17c	18c	19c
kolai괴ㄹ이 (2)	1463,1481				
koloi괴로이 (7)			1608	—————	1887
koyloi괴로이 (23)			1600	—————	1881
koylohi괴로히 (1)				1783	
koylopkey괴롭게 (11)				1748	1887

▼kut^hiyye구턱여(kut^hayye구태여)▼6 deliberately

	15c	16c	17c	18c	19c
kut ^h iyye구턱여 (293)	1447	—————	1752		
kut ^h iyya구턱야 (2)		1500	1670		
kut ^h ayye구턱여 (14)			1617	1797	
kut ^h ayya구턱야 (1)				1747	
kut ^h iye구트여 (1)			1632		
kut ^h ayye구태여 (33)			1617	1758	
kut ^h ayye구턱여 (1)			1632		
kut ^h ayya구턱야 (6)				1700—1792	
kut ^h iye구태여 (1)				1737	
kut ^h ayye구태여 (1)				1790	
kushayye긔ㅎ여 (21)			1600	—————	1876
kushaya긔ㅎ야 (20)			1676	1777	
kushayye긔ㅎ여 (1)			1677		

▼kaskom긔곰(kakkimga곰)▼7 occasionally

	15c	16c	17c	18c	19c
kaskom긔곰 (11)			1657	1752	
kaskim긔금 (1)				1795	

▼nalhoye날호여(c^henc^henhi천천히/tetikey더디게) ▼8 slowly

	15c	16c	17c	18c	19c
nalhoya날호야 (28)	1461	—————	1632		
lalhoye랄호여 (1)		1517			
nalhoye날호여 (30)		1586	—————	1795	

▼nencisi넌즈시(nencisi넌지시) ▼9 secretly

	15c	16c	17c	18c	19c
nencisi넌즈시 (13)	1463	—————		1728	
nencasi넌즈시 (1)				1797	
nenciki넌즈기 (1)	1481				

▼neli넌이(nelli넌리/nelpkey넌게) ▼10 widely

	15c	16c	17c	18c	19c
lepi러비 (3)		1576—1579, 1637			
lelpkey넌게 (1)				1736	
nelli넌리 (1)				1736	
nelpkey넌게 (3)				1746,	1900
nelpi넌이 (2)				1782,	1882
neli넌이 (9)			1632	—————	1881

▼nemti넌디(nemci넌지) ▼11 (not to) exceed

	15c	16c	17c	18c	19c
nemti넌디 (60)	1459	—————		1788	
nemci넌지 (6)				1765	—1887

▼nloyya누와야(tasi다시) ▼12 again

	15c	16c	17c	18c	19c
nloyya누와야 (167)	1447—1496				
nloyye누와여 (2)	1475,		1637		
nooyya누와야 (4)	1481	—————	1690		
noiyye누와여 (4)	1500	—————	1670		
noiyya누와야 (1)				1748	
noya누야 (1)			1608		
noye누여 (1)				1747	
noyya누야 (1)					1869
noyye누여 (3)			1677	—1764	

▼nacaki누작기(naciki나작이) ▼13 low, humbly

	15c	16c	17c	18c	19c
nacaki누작기 (80)	1459	—————		1772	
nacasi누작시 (2)		1586			
nacaki누작이 (7)		1586	—————	1736	
naciki누작기 (3)			1635, 1670, 1765		
nacaki나작이 (1)					1805
naciki나작이 (0)					

▼taman다만 ▼14 only

	15c	16c	17c	18c	19c
taman다만 (166)	1447	—————		1776	
tamayn다만 (9)	1459—1463				
tamin다만 (28)		1500	—————		1869

taman다만 (826)	1600	1900
tamun다문 (2)	1776, 1792	
tamanci다만지 (10)	1728—1876	
tamanta다만당 (2)	1728, 1763	
tamantya다만당 (1)	1758	

▼tamas다못(tepule더불어/hamkkey함께)▼15 together

	15c	16c	17c	18c	19c
tamas다못 (413)	1463			1796	
tamlat다문 (6)			1617	1749	
tamis다못 (15)		1586		1777	
tamit다문 (1)			1617		
tamos다못 (129)				1721	1900
tamot다문 (2)				1700, 1736	
tamiki다므기 (1)			1677		

▼tasikom다시곰(tasikim다시곰)▼16 again

	15c	16c	17c	18c	19c
tasikom다시곰 (57)	1447			1778	
tasiom다시옴 (4)			1600		
tasikim다시곰 (3)					1876

▼taqtaqi당다이(taqtaqhi당당히)▼17 grandly

	15c	16c	17c	18c	19c
taqtaqi당다이 (74)	1447—1496				
taqtaqi당당히 (81)	1481				
taqtaqi당다이 (4)	1447				
taqtaqi당당히 (119)		1517			1852
taqtaqi당당히 (4)			1632		
taqtaqhi당당히 (10)			1617		1887

▼tyagsyaq당상(長常, 항상)▼18 always

	15c	16c	17c	18c	19c
tyagsyaq당상 (30)	1461—1500				
tyagsyaq당상 (18)	1481,	1576		1749	
tyagsyaq당상 (1)	1489				
tyagsyaq당상 (2)			1617		

▼teok더욱(teouk더욱)▼19 more

	15c	16c	17c	18c	19c
teok더욱 (595)	1447				1900
teouk더욱 (436)	1447				1900

▼testesi덜덜히(ttestesi덜덜히)▼20 honorably

	15c	16c	17c	18c	19c
tetteti덜덜히 (15)	1461		1632		
tetteti덜덜히 (11)	1461				1737
tetteti덜덜히 (5)		1586	1658		
tettetsi덜덜히 (1)			1632		
testeti덜덜히 (5)			1632	1748	
testesi덜덜히 (26)			1658	1795	
testesi덜덜히 (1)			1632		
testesti덜덜히 (3)				1737—1792	

testessi뎃뎃시 (1)		1758
stesstessi뎃뎃시 (8)		1758—1790
stesstessi뎃뎃시 (1)		1765
ptestasi뎃뎃시 (2)	1481,	1632

▼tolohye도로혀(tolie도리어)▼21 on the contrary

	15c	16c	17c	18c	19c
tolahhye도러혀 (51)	1447—1467				
tolahye도러혀 (277)	1465			1737	
tolihye도러혀 (2)					1880—1881
tolohye도로혀 (398)	1481				1900
tolok ^h ye도로켜 (8)			1676		1900
toloye도로여 (3)					1880—1887
toliye도리어 (11)				1752—	1887
toliye돌이여 (2)					1887
tolie도리어 (0)					

▼tomoci도모지(tomuci도무지)▼22 (not) at all

	15c	16c	17c	18c	19c
tomoci도모지 (17)				1748—	1900
tomoti도모디 (1)				1778	
tomuci도무지 (1)					1895

▼tyohi도혀(cohkey종게)▼23 nicely

	15c	16c	17c	18c	19c
tyohi도혀 (293)	1447				1876
tyok ^h ey도깨 (32)	1447				1900

▼tulu두루▼24 all over

	15c	16c	17c	18c	19c
tulu두루 (234)	1447				1900
tuli두르 (3)	1461,		1632,	1737	
tulo두로 (130)		1517			1900
tulu둘우 (2)		1586,		1794	
tulo둘오 (1)				1763	

▼tut^hei두터이/tut^hepkey두텁게▼25 deeply, thickly

	15c	16c	17c	18c	19c
tut ^h ei두터이 (50)	1466				1852
tut ^h epkey두텁게 (4)	1466			1772	
tutkei둘거이 (16)	1463		1632		
tutkepkey둘겹게 (2)		1517—1586			
tut ^h ehi두터히 (2)				1772—1778	

▼tit^hu디투(cit^hkey질게)▼26 thickly

	15c	16c	17c	18c	19c
tit ^h u디투 (22)	1466—1497, 1576				
titkey덜게 (8)	1466,		1608—	1752	

▼maco마조(macumu주)▼27 face to face

	15c	16c	17c	18c	19c
maco마조 (94)	1447				1887
macumu주 (4)					1887, 1895

▼mastaghi맛당히(mattaghi마땅히)▼28 properly

	15c	16c	17c	18c	19c
mastagi맛당이 (3)	1459	1518			
mastaghi맛당히 (5)	1467	1481			
mastagi맛당이 (482)		1517			1900
mastaghi맛당히 (500)		1586			1900
masstagi맛쌍이 (3)			1653	1658	
masstaghi맛쌍히 (1)			1682		

▼melciki멀죽이(melcciki멀찍이)▼29 far apart

	15c	16c	17c	18c	19c
melccaki멀죽기 (1)	1489				
melcisi멀즈시 (2)		1500,	1670		
melciki멀죽이 (1)				1741	
melciki멀죽이 (3)				1765	1795
melcik멀직(melcik멀직) (1)					1895

▼meysma몇마(meyc^hpen몇번/elma얼마)▼30 how many

	15c	16c	17c	18c	19c
meysmas몇맛 (7)	1481		1632		
meysma몇마 (10)	1482	1575			
meysmeys몇몇 (4)				1728	1876
meyspen몇번 (2)					1881, 1883

▼moda모다(motu모두)▼31 all

	15c	16c	17c	18c	19c
mota모다 (522)	1447				1895
moto모도 (102)	1447				1900
motu모두 (5)				1774	1887

▼motili모디리(mocilkey모질게)▼32 ruthlessly

	15c	16c	17c	18c	19c
motili모디리 (7)	1463		1617		
motili모질이 (4)			1617	1658	
mocilkey모질게 (1)				1777	
mocili모질이 (0)					

▼molomay모로매(molimciki모름지기)▼33 by all means

	15c	16c	17c	18c	19c
molomay모로매 (768)	1447			1752	
molomi모로미 (145)		1517			1881
molomi모름이 (147)		1586		1795	
molamay모르매 (1)			1632		
molomay모름애 (10)			1682	1737	
molimi모름이 (2)				1763	1777
molomcik모름죽 (1)				1700	
molomciki모름죽이 (18)				1736	1881
molomcaki모름죽이 (2)				1761	1788
molimciki모름죽이 (9)				1777	1883
molimciki모름지기 (0)					

▼moncye몬저(mence먼저)▼34 first of all

	15c	16c	17c	18c	19c
montye몬더 (34)			1660	1794	

montyey몬테 (1)		1756	
moncyemon저 (1573)	1447	—————	1900
monce몬저 (22)	1467	—————	1792 1900
moncey몬제 (1)	1461		
moncyey몬제 (6)	1447	—————	1632
moncay몬지 (12)	1447	—————	1778
moncuy몬취 (1)			1792
monc ^h ye몬쳐 (1)		1682	
mencyemon저 (13)			1758 —1887
mence먼저 (1)			1895

▼motnay몰내(mosnay못내) ▼35 forever

	15c	16c	17c	18c	19c
motnay몰내 (32)	1447	—————	1569		
mosnay못내 (18)			1600	—————	1895

▼momso몰소 ▼36 personally

	15c	16c	17c	18c	19c
momzo몰소 (4)	1481	—————	1517		
momso몰소 (125)		1586	—————		1852
momsyom소 (1)				1795	
momco몰조 (1)			1617		

▼mintik문득(muntik문득) ▼37 suddenly

	15c	16c	17c	18c	19c
mintik문득 (755)	1447	—————			1900
mintisi문드시 (52)	1481	—————	1632		
mintis문드 (20)	1481	—————	1632		
mintiki문드기 (2)			1632		
muntik문득 (91)			1617	—————	1900
muntis문드 (1)				1776	

▼miliys물엿(mulis무룩) ▼38 in general

	15c	16c	17c	18c	19c
miliys물엿 (546)	1447	—————		1796	
muliys물엿 (2)	1465,			1721	
milis므룩 (146)			1600	—————	1900
milas므룩 (36)			1600	—————	1900
mulus물웃 (1)			1613		
miliyt물율 (4)			1617—	1658	
miliys므룩 (7)			1632	—————	1852
milos므룩 (1)			1658		
mulis무룩 (32)			1682	—————	1881
milis물웃 (15)				1721—	1785
mulas무룩 (11)				1756—	1788
muliys무룩 (3)					1852

▼mitpi밀비(mitkey밀게) ▼39 reliably

	15c	16c	17c	18c	19c
mitpi밀비 (14)	1459	—————	1632		
mispi밋비 (3)				1737	
mispikey밋브게 (4)				1746—	1797

▼macamak무죽막(macimak마지막)▼40 lastly

	15c	16c	17c	18c	19c
macamak무죽막 (18)	1459				1900
macimak무죽막 (1)				1768	
macakmak무죽막 (1)			1632		
macimak무지막 (1)					1900
macamak마죽막 (1)				1795	
macimak마즈막 (8)					1869—1887
macimmak마춤막 (1)				1763	
macimak마지막 (0)					

▼mac^hamay무춤매(mac^himnay마침내)▼41 at last

	15c	16c	17c	18c	19c
mac ^h amay무춤매 (282)	1447			1797	
mac ^h amay무춤매 (399)	1459			1797	
mac ^h amay무춤매 (19)		1586		1792	
mac ^h amay마침내 (3)			1632		1852
mac ^h amay무춤너 (4)				1772—1797	
mac ^h amay마춤너 (11)				1796—	1882
mac ^h imnay무춤너 (2)				1728, 1765	

▼mayyag미양(mayyag매양)▼42 always

	15c	16c	17c	18c	19c
mayzyag미양 (44)	1463—1496				
mayyag미양 (465)	1481				1900
mayzyagay미상애 (8)			1637—	1776	
mayzyagay미상인 (1)		1577			
mayyag매양 (2)				1728,	1895

▼mayi미이(mayu매우)▼43 very

	15c	16c	17c	18c	19c
mayβiri미비 (2)	1447, 1481				
mayi미이 (65)	1461			1797,	1852
mayo미오 (45)	1461				1869
mayu미우 (11)					1880—1900
maβi미비 (1)	1481				
mai미이 (32)		1517			1869
mayu매우 (1)					1895

▼palabar(palobar로)▼44 rightly

	15c	16c	17c	18c	19c
palobar로 (173)	1482,		1600		1900
palabar로 (305)	1459			1737	
palabar로 (2)			1632, 1676		

▼pantasi반드시(pantisi반드시)▼45 necessarily

	15c	16c	17c	18c	19c
pantaki반드시 (1446)	1459		1637		
pantasi반드시 (1556)	1481				1900
pantakay반드시 (4)	1481		1632		
pantiki반드시 (1)	1463				
pantisi반드시 (16)		1517			1876

▼paspi빳비(pappi바빠) ▼46 hurriedly

	15c	16c	17c	18c	19c
poyaspi빳빳비 (14)	1481	-----	1632		
poywaypi빳웨비 (1)			1632		
paspi빳비 (85)	1447	-----			1895

▼pentiki번드기(pentisi번듯이) ▼47 squarely

	15c	16c	17c	18c	19c
pentiki번드기 (50)	1447	-----	1632		
pentisi번드시 (10)	1461	-----		1795	
pentikhi번득히 (5)	1461	-----		1761	
pentaki번드기 (1)	1463				
pentasi번드시 (3)			1608, 1670, 1746		
pentitsi번들시 (1)			1670		
pentissi번드시 (1)					1876

▼potalai보두라이(potilapkey보드랍게) ▼48 softly

	15c	16c	17c	18c	19c
potalaiβi보드라비 (1)	1447				
potalai보드라이 (5)	1475	-----	1632		
potalapkey보드랍게 (2)	1459, 1466				

▼pucyelepsi부절업시(pucilepsi부절없이) ▼49 in vain

	15c	16c	17c	18c	19c
pucyelepsi부절업시 (18)			1669	-----	1852
pucilepsi부절업시 (1)			1657		
picyelepsi부절업시 (3)			1669	—	1721

▼picileni브즈러니(pucilenhi부지런히) ▼50 diligently

	15c	16c	17c	18c	19c
picileni브즈러니 (215)	1447	-----		1795	
picilani브즈라니 (1)	1459				
picilenhi브즈런히 (4)		1579	-----	1782	
picileni브즈런이 (24)		1586	-----	1783	
picilenni브즈런니 (2)			1637,	1776	
pucileni부즈러니 (7)				1721—1790	
pucileni부즐어니 (3)				1746—1752	
pucilenhi부즈런히 (2)				1736, 1745	
pucileni부즈런이 (17)				1736	— 1882

▼pilise비르서(piloso비로소) ▼51 for the first time

	15c	16c	17c	18c	19c
pilise비르서 (276)	1447	-----	1637		
pilose비로서 (9)	1464	-----		1783	
piliso비로소 (24)	1467	-----			1887
piloso비로소 (212)	1481	-----			1900
pilusu비루수 (11)	1481	-----	1632		
pilisu비르수 (24)	1481	-----	1632		
piluso비루소 (3)		1517,	1608—1632		
pilosu비로수 (2)			1632		
pilosye비로서 (1)				1756	
pilosye비로쇼 (7)				1772	— 1900

▼payahilo바야호로(payahilo바야호로)▼52 in full swing

	15c	16c	17c	18c	19c
payahilo바야호로 (20)				1700	1887
payailo바야호로 (1)				1736	
payahilo빅야호로 (85)			1617		1852
payahilo빅야호로 (3)			1617		
payahili빅야호로 (1)					1852
poyahalo보야호로 (31)	1461			1737	
poyaholo보야호로 (16)		1517		1792	
poyahilo보야호로 (67)		1586		1792	
payyahalo빅야호로 (2)			1617,	1736	
payyahilo빅야호로 (28)			1617		1852
payyaholo빅야호로 (1)				1749	
poyyahalo췌야호로 (65)	1447			1737	
poyyahilo췌야호로 (6)		1586		1737	
poyyaholo췌야호로 (14)		1517	1669		

▼palsye벌서(pelsse벌써)▼53 already

	15c	16c	17c	18c	19c
palsye벌서 (182)	1461				1852
palsye벌써 (25)	1447—1464,			1763	
palse벌서 (1)			1600		
pelsye벌서 (1)			1600		
palsye발서 (22)				1763	1900
palse발서 (2)					1895

▼paypili빅브르(paypulli배불리/paypulikey배부르게)▼54 (eating) heartily

	15c	16c	17c	18c	19c
paypili빅브르 (23)	1481			1758	
paypilikey빅브르게 (7)	1475			1758	
paypilikey빅브르기 (1)	1447				
paypila빅브르 (1)		1517			
paypilo빅브로 (2)			1632		
paypili빅브리 (1)			1677		
paypili빅블리 (7)			1658—1682		
paypulokey빅부르게 (1)				1741	
paypilni빅블니 (1)				1764	
paypuli빅블이 (2)				1752,	1883
paypulikey빅부르게 (5)					1887
paypulukey빅부르게 (1)					1887
paypulukey빅블우게 (1)					1887
paypulni빅블니 (2)					1900

▼saonai사오나이(sanapkey사납게)▼55 violently

	15c	16c	17c	18c	19c
saonaβ사오나비 (4)	1447—1467				
saonai사오나이 (11)	1481			1797	
saonapkey사오납게 (2)		1517,			1900
sanapkey사납게 (0)					
saolaβ사오라비 (0)					
saolai사오라이 (0)					

▼syagney상네(nil늘/hagsan항상)▼56 always

	15c	16c	17c	18c	19c
syagney상네 (782)	1447	—	1518		
syagney상네 (4)	1465	—	1496		
syagney상네 (270)	1447	—	—	1752	
syagley상례 (9)		1517	—	1776	
sagney상네 (4)	1447	—	1465		
sagney상네 (9)	1447	—	—	1776	

▼syagsyan상상(nil늘/hagsan항상)▼57 always

	15c	16c	17c	18c	19c
syagsyan상상 (11)				1777	1881
syagsyaney상상에 (3)			1670	1677	
syagsyaniy상상의 (2)			1600	1670	

▼syagsi상시(nil늘/hagsan항상)▼58 always

	15c	16c	17c	18c	19c
syagsi상시 (16)			1600	1788	
syagsiey상시에 (7)				1758	1797
syagsiyey상시에 (8)			1600	1746	
syagsiyy상시의 (10)				1756	1790

▼syaghay상해(nil늘/hagsan항상)▼59 always

	15c	16c	17c	18c	19c
syaghay상해 (93)			1676	—	1880
syaghay상해 (156)		1517	—	1797	

▼seli서르(selo서로)▼60 each other

	15c	16c	17c	18c	19c
sela서르 (528)	1475	—	—	1795	
seli서르 (1930)	1447	—	—	1749	
selo서로 (487)	1459	—	—	—	1900
sseli췌르 (1)	1462				
selu서루 (1)				1700	
sela서라 (1)				1744	
syelo서로 (86)			1637	—	1883
syeli서르 (1)	1463				

▼syelpkey설개(selpkey설개)▼61 sadly

	15c	16c	17c	18c	19c
syelβi설비 (1)	1459				
syeli설이 (9)	1461	—	1676		
syelpkey설개 (10)	1463	—	—	1795	
selpkey설개 (1)			1600		

▼sonco손조(sonsu손수)▼62 in person

	15c	16c	17c	18c	19c
sonzo손조 (41)	1447	—	1518		
sonco손조 (61)		1500	—	—	1876
sonso손조 (13)			1617	—	1852
sono손오 (2)			1632		
sonca손조 (2)			1677		
syocy손조 (2)			1600		1876
sonsu손수 (1)					1895

▼sui수이(suykey쉽게) ▼63 easily

	15c	16c	17c	18c	19c
suβi수비 (19)	1447—1475				
supi수비 (1)	1466				
sui수이 (275)	1461				1852
suyβi쉬비 (3)	1459				
suyi쉬이 (35)	1461			1796	
suy쉬 (47)	1463				1876
syui슈이 (4)			1600		1881
suykey쉽게 (7)			1670		1900

▼syukoloi슈고로이(sukolopkey수고롭게) ▼64 laboriously

	15c	16c	17c	18c	19c
syukoloi슈고로이 (26)	1481				1881
syukolai슈고락이 (1)	1462				
syukolopkey수고롭게 (7)				1736—1790	

▼silili스르르 ▼65 softly

	15c	16c	17c	18c	19c
silili스르르 (4)			1632		
sililihi스르르히 (2)	1481,		1632		
sililisi스르르 (1)				1728	

▼sisalo스스로 (sisilos스로) ▼66 by oneself

	15c	16c	17c	18c	19c
sisilos스로 (632)	1467			1796	1895
sisiylos스시로 (80)	1447		1632		
sisalos스로 (819)			1617		1900
sisinos스스노 (1)			1617		
sisalos사로 (76)					1887
sisaylos스시로 (1)			1632		
sisilos시스로 (1)					1900
sasilos스로 (1)				1774	
cisilos즈스로 (41)			1632		

▼silk^hacay술크장 (silk^hes실컷) ▼67 more than enough

	15c	16c	17c	18c	19c
silk ^h acay술크장 (6)				1728—1763	
silk ^h acyay술크장 (2)					1876
silk ^h aci술크자 (2)					?(1850~1863)
silk ^h am술꼴 (1)		ca.1570			
silk ^h esi술커시 (1)					1876
silk ^h ecay술크장 (1)				1728	
silk ^h es실컷 (4)			1600		1869
silk ^h es실컷 (0)					

▼siyhuyeni식원이 (siuyenhi시원히) ▼68 refreshingly

	15c	16c	17c	18c	19c
siyhuyeni식원이 (6)			1669	—1790	
siuyenhi시원히 (0)					

▼siyhi식히 (sikey시게) ▼69 sourly

	15c	16c	17c	18c	19c
siyhi식히 (1)	1481				

siyhi식히 (5) 1481 ————— 1632
 sikey시게 (0)

▼siyksiyki씩식기(emhakey엄하게) ▼70 strictly

	15c	16c	17c	18c	19c
siyksiyki씩식기 (80)	1447	—————	1632		
siyksiyki씩식이 (7)	1475	—————		1797	
siyksiykhi씩식히 (6)	1475	—————		1736	
siyksiykki씩식기 (3)		1517,	1632, 1637		
siyksiki씩스기 (3)	1481,		1632		

▼silekom시러곰(ete얻어/nighi능히) ▼71 ably

	15c	16c	17c	18c	19c
silekom시러곰 (489)	1481	—————			1887
silekim시러금 (10)				1736	1887

▼sihok시혹(hoksi혹시) ▼72 perhaps

	15c	16c	17c	18c	19c
sihok시혹 (888)	1447	—————		1752	
sihik시혹 (1)	1465				
sihuk시혹 (1)		1500			
hoksi혹시 (8)			1600	—————	1895

▼sillo실로 ▼73 really

	15c	16c	17c	18c	19c
sillo실로 (133)	1447	—————		1797,	1895, 1900
silno실노 (109)			1600	—————	1900

▼salayya스랴아(hampulo함부로) ▼74 roughly

	15c	16c	17c	18c	19c
salaye스랴여 (4)				1765, 1795	
salayya스랴아 (9)			1677	1721	
salayye스랴여 (6)			1677	1765	
sallayya술랴아 (1)			1670		
salooye술의여 (1)			1670		
saliyye술의여 (1)		1517			
salayye술익여 (5)		1500	1670		
saliyya술의야 (1)				1721	
salayya술익야 (2)				1721	
salaye술으여 (3)			1657,	1795	

▼salstili술뜨리(salttilhi살뜰히) ▼75 affectionately

	15c	16c	17c	18c	19c
saltali술뜨리 (1)			?(1649~1659)		
saltili술뜨리 (1)				1728	
salstili술뜰이 (1)				1763	
salstili술뜨리 (3)				1876	

▼ati아디(alci알지) ▼76 has (no) knowledge of

	15c	16c	17c	18c	19c
ati아디 (895)	1475	—————		1797,	1882
aci아지 (518)			1632	—————	1900
alci알지 (8)				1777,	1887—1900

▼atakhi아득히(atikhi아득히)▼77 remotely

	15c	16c	17c	18c	19c
ataki아득기 (7)	1459	—————	1632		
atakhi아득히 (10)	1459	—————	1632		
atakataki아득아득기 (3)	1481,		1632		
atakatakhia아득아득히 (1)			1632		
atak아득 (4)		1576			
atak아득 (1)		1575			
ataki아득이 (1)				1700	
atikhi아득히 (2)				1795,	1882

▼alamtai아름다이(alimtapkey아름답게)▼78 beautifully

	15c	16c	17c	18c	19c
almtaβi아름다비 (1)	1459				
alamtai아름다이 (61)	1465	—————			1852
alimtai아름다이 (3)			1658,	1736,	1876
alimtapkey아름답게 (2)			1658,		1883
alimtapkey아름답게 (5)		1517	—————		1852

▼alimtye아름더(sasaloi사사로이)▼79 privately

	15c	16c	17c	18c	19c
alimtye아름더 (9)	1461	—————	1632		
alimtye아름더 (3)		1518			
alimtyei아름더이 (1)		1518			
alimt ^h eylo아름데로 (1)		1518			
alamc ^h ilo아람치로 (?)					

▼amoli아모리(amuli아무리)▼80 however (much)

	15c	16c	17c	18c	19c
amoli아모리 (48)			1600	—————	1852
amuli아무리 (20)				1728	——1876
amili아무리 (25)			1676	——1774	

▼amali아무리(ettehkey어떻게)▼81 how

	15c	16c	17c	18c	19c
amal ^h yey아므례 (1)	1447				
amal ^h yeyna아므례나 (5)	1447—1459				
amali아므리 (5)	1447	—————			1776

▼azalahi아수라히(asilai아스라이/atikhi아득히)▼82 dimly

	15c	16c	17c	18c	19c
azalahi아수라히 (40)	1464	——1517			
azalai아수라이 (2)	1481—1482				
alahi아으라히 (60)			1632		
alalai아으라이 (4)		1586	—————	1721	
ailai아으라이 (1)				1795	
alalahi아룩라히 (1)			1632		
asilahi아스라히 (0)					

▼ayala아야라(kyeu겨우)▼83 barely

	15c	16c	17c	18c	19c
ayala아야라 (11)	1481	—————		1776	
ayalosi아야로시 (1)			1632		

ayaolasi아야오르시 (1)	1475		
ayalo아아로 (1)		1576	
ayalai애아라이 (1)		1588	
ayyalasiैया르시 (2)	1481,		1632
ayyalaैया라 (4)	1481,		1632
ayyalosiैया로시 (1)		1588	
ayyeleैया러 (2)	1481,		1632

▼aolo아오로(aulle아울러)▼84 together

	15c	16c	17c	18c	19c
aolo아오로 (108)	1463				1852
aola아오라 (2)			1600		
aolna아올나 (1)					1887
aulna아울나 (1)					1887
aulne아올너 (3)					1883
aollo아올로 (0)					

▼aiey아이예(ayey아예/c^heimey처음에)▼85 from the start

	15c	16c	17c	18c	19c
aiey아이예 (4)				1736—1783	
aiyey아이예 (4)				1777—1792	
aiiy아이의 (1)				1777	
ayey아예 (0)					

▼aco아조(acu아주)▼86 entirely

	15c	16c	17c	18c	19c
aco아조 (74)		1576			1900
acA아조 (1)			1608		
acu아주 (1)					1895

▼acik아직▼87 still, as yet

	15c	16c	17c	18c	19c
acik아직 (336)	1447				1900
acik아죽 (3)					1881—1900
atik아딕 (4)			1600,	1752—1797	
ancik안직 (64)	1481		1632		
ancik안죽 (8)		1517—1586,	1632		
ancAk안죽 (48)	1447			1749	

▼app^haysye압페서(ap^heyse앞에서)▼88 beforehand

	15c	16c	17c	18c	19c
app ^h aysye압페서 (31)					1881—1887
aphaysye압해서 (1)					1900
apheysye압해서 (23)					1900
ap ^h aysye아픽서 (0)					
ap ^h iysye아픽서 (0)					

▼etiwe어드워(etuwe어드워/etupkey어둡게)▼89 darkly

	15c	16c	17c	18c	19c
etiwe어드워 (36)	1459		1632		
etipkey어둡게 (11)	1459		1632		
etuwe어드워 (6)	1461				1887

etue어두어 (11)	1461	—————	1900
etui어두이 (3)	1463		
etupkey어둡게 (5)		1658	————— 1880
etopkey어둡게 (1)			1736

▼etiysten어디편(eccayssin어뻘든/eccier썩) ▼90 anyhow

	15c	16c	17c	18c	19c
etiysten어디편 (14)	1447	—————	1690		
etiystan어디편 (3)	1475	—————	1517		
etiystin어디편 (1)		1517			
etiysten어뻘던 (13)	1447—1482				
etiyssten어뻘편 (1)	1481				
etistan어디편 (1)		1500			

▼etiti어디디(ecilci어질지) ▼91 (not) gently

	15c	16c	17c	18c	19c
etiti어디디 (52)	1459	—————	1764		
etici어디지 (1)				1772	
ecici어지지 (16)				1746	————— 1882
etilci어덜지 (0)					
ecilci어질지 (0)					

▼etili어디리(ecilkey어질게) ▼92 gently

	15c	16c	17c	18c	19c
etili어덜이 (7)		1517	—————	1797	
etili어디리 (8)	1461	—————	1772		
etilkey어덜게 (3)				1736	
ecilkey어질게 (4)				1777	————— 1882
ecili어질이 (1)					1852
ecili어지리 (0)					

▼elyei어려이(elyepkey어렵게) ▼93 difficultly

	15c	16c	17c	18c	19c
elyeβi어려비 (6)	1459—1467				
elyei어려이 (58)	1461	—————	1790		
elyepkey어렵게 (3)	1463,		1617,	1790	

▼esye어서(ese어서) ▼94 quickly

	15c	16c	17c	18c	19c
esye어서 (67)	1447	—————	1852		
ese어서 (2)					1876

▼eyespi어옛비(pulssanghi불쌍히) ▼95 pitifully

	15c	16c	17c	18c	19c
eyespi어옛비 (5)	1447—1459				
eyespi어옛비 (320)	1447	—————	1887		
eyespβi어옛비 (1)	1459				
eespi어옛비 (1)	1465				
eyespy어옛비 (1)	1475				
eyesspi어옛비 (7)			1617	—————	1752
eyetpi어열비 (6)			1617	—————	1752
eyeppi어열비 (31)					1887
eyeyspi어옛비 (2)	1496,	1500			

eyyespi에옛비 (47)	1500	1783
eyyeespi에옛비 (1)	1517	
eyesspi에옛씨 (1)	1658	

▼ecilei어즈러이(ecilepkey어지럽게)▼96 dizzyly

	15c	16c	17c	18c	19c
ecalei어즈러이 (4)			1600—1617		
ecilei어즈러이 (165)	1461				1882
ecileβi어즈러비 (10)	1447—1467				
ecilepi어즈러비 (1)	1466				
ecilepkey어즈럽게 (6)	1465		1796		
ecilei어지러이 (2)					1883
ecilepkey어지럽게 (1)					1895
ecillei어즐러이 (1)		1632			

▼encey언제▼97 when

	15c	16c	17c	18c	19c
encey언제 (97)	1447				1900
encyey언제 (6)				1764	1895
encay언지 (10)			1690	1778	
enicey어느제 (3)	1481				
eniycey어늬제 (2)		1517,		1763	

▼elmana얼마나▼98 how much

	15c	16c	17c	18c	19c
elmana얼마나 (21)				1764	1900
elmayna얼매나 (2)				1776	
elmena얼머나 (3)			1658—1670		
elmayna얼밀나 (4)					1887

▼eptyui업슈이(epsui업수이)▼99 with contempt

	15c	16c	17c	18c	19c
epsui업수이 (8)				1796	1887
epsuhi업수히 (4)					1900
epsyui업슈이 (65)		1576			1882
epsyui업슈히 (2)					1876, 1880
epsyuni업숨이 (2)			1617,		1852
epsyoi업쇼이 (2)			1656,	1736	
epsi업시 (628)	1447				1900
epsiuy업시위 (1)		1553			

▼esti엇디(acci어찌)▼100 why

	15c	16c	17c	18c	19c
estey어째 (1)	1459				
esti어찌 (1)			1617		
estye엇더 (28)	1447			1700	
estyey엇떼 (1873)	1447			1776	
esti엇디 (2199)	1459				1883
escyey엇체 (7)			1632	1746	
esci엇지 (1540)			1600		1900
estey엇떼 (5)	1465—1496				
este엇더 (45)	1459				1887

▼yekiy여기(yeki여기)▼101 here

	15c	16c	17c	18c	19c
ineki이어기 (38)	1447—1482				
ieki이어기 (12)	1459		1632		
iyeki이어기 (2)			1632		
yekiy여기 (294)	1482				1900
yekay여기 (3)					1852
yeki여기 (0)					

▼yeshay옛히(yet^hay여태)▼102 till now

	15c	16c	17c	18c	19c
yet ^h ay여태 (1)				1728	
yett ^h ay열터 (1)				1790	
yest ^h ay옛터 (1)				1776(?)	
yest ^h ay옛태 (3)				1748—1768	
yeshay옛히 (4)				1765—1790	
yeshay옛해 (2)				1765	

▼onalnal오늘날(onilnal오늘날)▼103 nowadays

	15c	16c	17c	18c	19c
onalnal오늘날 (75)		1517			1900
onal ^s nal오늘날 (66)	1447		1632		
onal ^l nal오늘날 (1)	1445				
onilnal오늘날 (4)				1737	1881
onilsnal오늘날 (0)					

▼olo오로(oncenhi온전히)▼104 intactly

	15c	16c	17c	18c	19c
olo오로 (184)	1459			1790	
o ^l lo오 ^l 로 (43)	1447		1632		
oolo오오로 (8)	1481			1752	

▼ocik오직▼105 solely

	15c	16c	17c	18c	19c
otik오딕 (66)			1632		1882
ocik오직 (2868)	1447				1900
ocik오죽 (9)					1876—1883

▼ohilye오히려▼106 rather (than), on the contrary

	15c	16c	17c	18c	19c
sancay순차 (180)	1447			1752	
ohilye오히려 (1471)	1447				1900
oyhilye오히려 (6)		1579	1617		
ohilye오히려 (2)			1617,	1752	
ohile오히려 (4)			1632		1900

▼oyloi외로이▼107 lonely

	15c	16c	17c	18c	19c
oy ^l ai외 ^l 라이 (10)	1463		1632		
oyloi외로이 (24)	1481				1876
oylopkey외롭게 (1)					1887
oylapkey외롭게 (0)					

▼yosai요사이(yosai요사이)▼108 recently

	15c	16c	17c	18c	19c
yosazi요사지 (26)	1459	—1517			
yosai요사이 (151)		1517	—	—	1881
yosai요사이 (3)			1676,	1748,	1895

▼yocozom요조솜(yocim요조음/yocim요즘)▼109 lately

	15c	16c	17c	18c	19c
yocozam요조솜 (2)	1481,	1517			
yocozom요조솜 (4)	1481	—1500			
yocozum요조솜 (1)	1481				
yocuzum요조솜 (1)	1481				
yocoom요조음 (4)		1586	—1632		
yocalam요조음 (3)			1632—1669		
yocoum요조음 (1)			1632		
yocuum요조음 (1)			1632		
yociim요조음 (1)			1670		

▼ilek^hey이러케(ilehkey이렇게)▼110 like this

	15c	16c	17c	18c	19c
ilehi이러히 (9)	1447—1459				
ilek ^h ey이러케 (28)				1762—	1900

▼imiy이미(imi이미)▼111 already

	15c	16c	17c	18c	19c
imi이미 (13)	1464		1632	1752—	1887
imiy이미 (709)		1500	—	—	1895
imiysye이미셔 (46)	1481	—	—	1765	
imay이미 (19)			1600	—1736	
imuy이미 (1)				1736	
imi이미 (1)				1736	

▼iikko이속고▼112 before long

	15c	16c	17c	18c	19c
izikko이속고 (29)	1463	—1518			
iikko이속고 (109)		1586	—	—	1881
ialkko이속고 (1)			1617		

▼icey이제▼113 now

	15c	16c	17c	18c	19c
icay이제 (44)			1658	—1792	
icey이제 (2971)	1447	—	—	—	1900

▼it^hyelo이터로(ic^helem이처럼)▼114 in this way

	15c	16c	17c	18c	19c
it ^h yelo이터로 (3)			1600	—1756	
ic ^h yelo이처럼 (3)				1790	
ic ^h elem이처럼 (1)					1900

▼it^hinnal이튿날(it^hitnal이튿날)▼115 the next day

	15c	16c	17c	18c	19c
it ^h isnal이튿날 (17)	1447	—	—	—	1881
it ^h ilsnal이튿날 (11)	1459—1482				

it ^h ilznal이툼날 (1)	1481			
it ^h innal이툼날 (85)		1517	—————	1895
it ^h itnal이툼날 (1)			1600	
it ^h annal이툼날 (41)			1617	—1772
ist ^h annal이툼날 (5)			1660	—1777
ist ^h innal이툼날 (15)			1682	————— 1887
ishinnal이툼날 (10)				1774 —1900
it ^h innal이툼날 (2)				1778, 1880
it ^h isnal이툼날 (1)				1797

▼ilcik일죽(ilccik일찍)▼116 early

	15c	16c	17c	18c	19c
ilccekiy일찌거 (1)	1459				
ilcik일죽 (784)	1461	—————			1895
ilccik일죽 (3)	1464				
ilcisi일즈시 (3)		1500	—1658		
ilciki일즈기 (1)			1608		
ilcaki일즈기 (2)			1632—1670		
ilciki일죽이 (58)			1632	—————	1900
ilcikki일죽기 (1)			1670		
ilcciki일찌기 (1)		1587—1600			
ilscikey일쑤에 (3)			1677	—1721	
ilscik일쑤 (54)				1721—1795	
ilsciki일쑤이 (12)				1721	—1876
ilcak일죽 (79)				1736	—1900
ilcaki일죽이 (10)				1736	—1900
ilcakey일죽에 (1)				1763	
ilpciki일쑤이 (1)				1775	

▼camskan잠깐(camkkan잠깐)▼117 a little while

	15c	16c	17c	18c	19c
camkan잠깐 (110)		1576	—————		1900
camskan잠깐 (142)	1447	—————			1900
camskan잠깐 (192)	1447	—————	1632		
camskyan잠깐 (1)	1463				

▼cyanstik잔스득(canttik잔뜩)▼118 till full

	15c	16c	17c	18c	19c
canstik잔쑤 (1)				1768	
canstik잔스득 (1)				1768	
cyanstik잔쑤 (1)				1790	
cyanstik잔스득 (2)				1748, 1768	

▼cyanc^has장춧(canc^ha장차)▼119 in future

	15c	16c	17c	18c	19c
cyanc ^h a장차 (2)	1465, 1496				
cyanc ^h a장차 (78)					1887
cyanc ^h as장차 (2)					1881
cyanc ^h a장춧 (62)	1447	—————			1881
cyanc ^h at장춧 (61)			1617	—1700	
cyanc ^h as장춧 (3)	1481	— 1500			
cyanc ^h as장춧 (556)		1517	—————		1900

▼ceyyekom제여곰(ceyakkije라기)▼120 individually

	15c	16c	17c	18c	19c
ceyekom저여곰 (5)	1481	—————	1632		
ceyyekom제여곰 (99)	1447	—————	1632		
ceykom제곰 (5)		1517	———1664		
ceykim제곰 (1)				1763	
ceykum제곰 (2)		1576,		1700	
ceyyekkim제여곰 (1)	1459				
ceyyeykom제예곰 (1)			1632		
ceyikom제이곰 (1)	1481				

▼cyekintes저근덧(camkkantogan잠깐동안)▼121 for a moment

	15c	16c	17c	18c	19c
cyekintes저근덧 (26)			1600	—————	1876
cyekintas저근닷 (2)				1776	
cyekintet저근덧 (15)	1463	—————		1752	
cyekintis저근덧 (2)				1764	
cyekintas저근덧 (2)			1600	1772	

▼cyenskas졌고(maimkkes마음껏/makuma구/hampulo함부로)▼122 at random

	15c	16c	17c	18c	19c
cyenkat전곧 (3)				1752	
cyenskas전긋 (2)	1447, 1459				
cyenskat전곧 (4)	1461—1465				
cyenskas전긋 (7)	1459—1475				

▼cyenhye전혀(cenhye전혀)▼123 entirely

	15c	16c	17c	18c	19c
cyenhye전혀 (173)	1447	—————			1882
cyenhhye전혀 (1)	1464				
cenhye전혀 (5)	1459	—————		1763	

▼cyemcyem점점(cemcem점점)▼124 little by little

	15c	16c	17c	18c	19c
cyemcyem점점 (171)	1466	—————			1900
cemcem점점 (7)	1466	—————			1895

▼cozalo이조소로이(cogyolopkey중요롭게)▼125 importantly

	15c	16c	17c	18c	19c
cozalaβ이조소로이 (1)	1467				
cozala이조소로이 (2)	1465				
cozalo이조소로이 (1)	1481				
cozalo이조소로이 (6)	1481				
coolo이조소로이 (4)			1632		
collo이조소로이 (4)			1632		
*coyoloyoy조소로이 (1)			1632		

▼cohi조히(kkaykksi깨끗이)▼126 cleanly

	15c	16c	17c	18c	19c
cohi조히 (123)	1447	—————			1881
cok ^h ey조깨 (51)	1447	—————		1796	

▼cyokom조곰(cokim조곰)▼127 a little

	15c	16c	17c	18c	19c
cyokom조곰 (28)			1608	—————	1869
cokom조곰 (26)				1752	——1900
cokim조곰 (2)					1895
cyokim조곰 (7)			1600	—————	1887

▼cyogyoghi종용히(coyoghi조용히)▼128 silently

	15c	16c	17c	18c	19c
cyoyoghi조용히 (5)			1676	——1777	
coyoghi조용히 (1)				1700	
coyoghi종용이 (1)					1852
coyoghi종용히 (1)				1748	
cyogyoghi종용히 (37)		1517	—————		1900
cyogyoghi종용이 (5)				1748	—1900

▼cüm즈음▼129 the time (when)

	15c	16c	17c	18c	19c
cuzum주숨 (8)	1481				
cuum주움 (3)			1632		
cizim즈숨 (5)	1463	——1569			
cüm즈음 (23)			1617	—————	1900

▼ciksi즉시▼130 instantly

	15c	16c	17c	18c	19c
ciksi즉시 (733)			1600	—————	1900
ciksiyey즉시예 (4)	1466	——1586			
cikcay즉지 (10)				1700—1792	
cikcahi즉자히 (201)	1447	—————	1617		
cikcay즉재 (668)	1459	—————		1752	
cikcey즉제 (179)	1489	—————		1790	
cikc'ay즉채 (1)	1489				
ciksilo즉시로 (2)				1758	
cikcyey즉제 (2)			1617, 1632		
cikcahi즉존히 (2)	1447, 1459				

▼cicilo지즈로(inhaye인하여)▼131 because of

	15c	16c	17c	18c	19c
cicilo지즈로 (94)	1481	—————	1632		
cicilu지즈루 (4)	1481	—————	1632		

▼cinsillo진실로▼132 truly

	15c	16c	17c	18c	19c
cinsillo진실로 (528)	1466	—————			1887
cinsilno진실노 (263)			1658	—————	1900
cincillo진철로 (4)		1517,	1608, 1632		

▼cincis진짓(cimcis짐짓)▼133 deliberately

	15c	16c	17c	18c	19c
cincis진짓 (95)	1481	—————			1852
cincit진질 (1)			1617		
cincis진죽 (5)				1796	——1852
cimcas짐죽 (3)			1677	——	1761

cimcik짐죽 (1)				?(1850~1863)
cimcis짐죽 (47)	1475	_____		1880
cimcis짐깃 (1)				1895
cimcit짐줄 (3)		1632	— 1700	

▼CANAKCANAKI죽죽죽기(coyonghi조용히/c'henc'h'enhi천천히)▼134 silently/slowly

	15c	16c	17c	18c	19c
CANAKCANAKI죽죽죽기 (31)	1447	_____	1632		
CANIKCANIK죽죽죽죽 (2)				1728, 1763	
CANAKCANAKKI죽죽죽죽기 (3)			1608—1632		

▼CAMO조모(camos자못)▼135 exceedingly

	15c	16c	17c	18c	19c
CAMA조모 (5)	1447	_____	1632		
CAMO조모 (152)	1463	_____		1796	
CAMAT조모 (4)			1617	—1752	
CAMAS조못 (23)		1586	_____	1792	
CAMOS조못 (44)			1632	_____	1882
CAMOT조몰 (6)				1700—1752	
CAMIT조몰 (1)				1748	
CAMIS조못 (24)			1658	—1758	
CAMOS자못 (4)				1796	—1852
COMO조모 (1)		1583			

▼CASYEYHI조세히(caseyhi자세히)▼136 minutely

	15c	16c	17c	18c	19c
CASYEYHI조세히 (79)	1482	_____			1900
CASYEYI조세이 (8)			1632	_____	1852
CASEYI조세이 (1)					1852
CASEYHI조세히 (1)				1792	
CASYEI조세이 (7)			1682	_____	1881
CASYEHI조서히 (73)	1496	_____			1883
CASI조시 (12)			1600	— 1792	
CASEYI자세이 (3)					1887
CASEYHI자세히 (3)					1887
CASYEHI자서히 (2)	1496,		1670		
CASYEYHI자세히 (2)				1748,	1887

▼CAYENHI조연히(cayenhi자연히)▼137 naturally

	15c	16c	17c	18c	19c
CAYENHI조연히 (10)	1489	_____	1517		
CAYENI조연이 (26)		1517	_____		1881
CAYENHI조연히 (32)		1517	_____	1796	
CAYENHI자연히 (3)	1466				

▼CACO조조(cacu자주)▼138 often

	15c	16c	17c	18c	19c
CALO조로 (93)	1447	_____			1876
CACO조조 (331)	1447	_____			1881
CACU조주 (1)					1869
CACYO조조 (1)					1881
CACO자조 (3)					1900
CACU자주 (2)					1887
CALO자로 (8)			1600	_____	1895

▼c^hakhi착히(c^hakhakey착하게)▼139 virtuously

	15c	16c	17c	18c	19c
c ^h akhi착히 (3)				1736—1797	
c ^h akhakey착하게 (1)				1796	
c ^h yakhi착히 (1)					1881
c ^h yakhakey착하게 (0)					

▼c^hezem처엄(c^heim처음)▼140 first

	15c	16c	17c	18c	19c
c ^h ezem처엄 (487)	1447	—1579			
c ^h ezam처엄 (1)	1481				
c ^h ealm처음 (6)			1690—	1777	
c ^h eem처엄 (166)		1541	—	1792	
c ^h eim처음 (46)			1632	—	1900
c ^h yezem처엄 (3)	1465	—1576			
c ^h yeem처엄 (2)		1576		1792	
c ^h yeim처음 (12)			1698	—	1876

▼c^hyenc^hyeni천천히(c^henc^henhi천천히)▼141 slowly

	15c	16c	17c	18c	19c
c ^h enc ^h eni천천히 (1)					1895
c ^h yenc ^h yeni천천히 (13)			1600	—	1869

▼c^hiki츠기(c^hikinhi측은히)▼142 compassionately

	15c	16c	17c	18c	19c
c ^h iki츠기 (29)	1447	—	1632		
c ^h iki측이 (1)				1758	
c ^h ikinhi측은히 (7)				1746—	1900
c ^h ikyeni측연히 (3)				1756,	1852, 1895
c ^h ikyenhi측연히 (4)				1746—	1783, 1895

▼c^halyeylo차례로(c^halyeylo차례로)▼143 in turn

	15c	16c	17c	18c	19c
c ^h alyeylo차례로 (4)			1682	—1778	
c ^h alyeylo차례로 (41)	1481	—			1900
c ^h alyeylo차례로 (3)				1772,	1778

▼c^halhal출하리(c^halali차라리)▼144 rather (than)

	15c	16c	17c	18c	19c
c ^h alalo차라로 (2)				1728	
c ^h alali차라리 (6)			1632	—	1883
c ^h alali차라리 (12)					1852—1895
c ^h alali차라리 (1)				1797	
c ^h alali출하리 (3)				1700—	1768
c ^h alhal출하로 (16)			1617	—	1876
c ^h alhal출하리 (78)	1464	—			1900
c ^h alhi출하 (32)	1447	—		1776	
c ^h alhal출하로 (3)	1481,		1632		
c ^h alhal출하리 (2)				1737,	1900
c ^h alalo차라로 (1)				1728	
c ^h alhal찰하리 (2)				1764,	1895
c ^h alhal찰하로 (1)				1763	
c ^h alhal찰하리 (1)					1887

▼c^hama츄마(c^hama차마)▼145 for (all) the world

	15c	16c	17c	18c	19c
c ^h ama츄마 (189)	1586	—————	—————	1882	
c ^h amya츄야 (1)				1756	
c ^h ama츠마 (172)	1447	—————	—————	—————	1882
c ^h ama참아 (10)			1600	—————	1895
c ^h ama차마 (3)			1632,		1852,1895

▼c^hamhi츄히(cokhi죽히)▼146 enough

	15c	16c	17c	18c	19c
c ^h amhi츄히 (2)		1517,	1676		
cokhi죽히 (2)					1852

▼c^haykc^hayki칙치기(ppaykppayki뻑뻑이)▼147 densely

	15c	16c	17c	18c	19c
c ^h aykc ^h ayki칙치기 (7)	1447—1482,		1632		
ppaykppaykhi뻑뻑히 (3)					1895
ppaykppayki뻑뻑이 (0)					

▼k^hikey크게▼148 in a big way

	15c	16c	17c	18c	19c
k ^h ikey크게 (606)	1459	—————	—————	—————	1900
k ^h i키 (116)	1446	—————	1637		

▼t^hikpyeli특별이(t^hikpyelhi특별히)▼149 particularly

	15c	16c	17c	18c	19c
t ^h ikpyeli특별이 (127)		1517	—————	—————	1881
t ^h ikpyelhi특별히 (14)				1745—1792	

▼p^hyenanhi편안히▼150 comfortably

	15c	16c	17c	18c	19c
p ^h yenanhi편안히 (51)	1463	—————	—————	1783	
p ^h yenani편안이 (30)		1517	—————	—————	1887
p ^h yenanhi편안히 (1)		1517			

▼himhimi힘힘이(hankahi한가히)▼151 with leisure

	15c	16c	17c	18c	19c
himhimi힘힘이 (2)		1500	1657		
himhimi힘힘이 (13)			1669	—————	1795
himhimhi힘힘히 (3)			1670,	1721,1765	
hankahi한가히 (9)		1576	—————	—————	1900

▼hamalmye하물며(hamulmye하물며)▼152 much (still) more/less

	15c	16c	17c	18c	19c
hamalmye하물며 (353)	1447	—————	—————	1792	
hamilmye하물며 (320)		1586	—————	—————	1900
hamulmye하물며 (21)				1728	1887
hamalmye하물며 (2)			1658,	1737	
hamilmye하물며 (2)				1745,	1900
hamulmye하물며 (5)					1882—1895
hemilmye허물며 (8)				1796	1900

▼hayekom하여곰(hayekim하여금)▼153 letting (someone do)

	15c	16c	17c	18c	19c
hayakom하야곰 (92)		1500			1900
hayakim하야금 (11)				1736	1882
hayekom하여곰 (876)		1517			1900
hayekim하여금 (32)			1682		1887
hayyakom하야곰 (10)			1608		1883
hayyekom하여곰 (232)	1475			1796	
hayyekim하여금 (2)				1783	
hayakom하야곰 (1)					1883
hayekom하여곰 (2)				1736, 1792	

▼haoza호오사(honca혼자/hollo홀로)▼154 alone

	15c	16c	17c	18c	19c
haβaζa호벌사 (2)	1445				
haoza호오사 (253)	1447—1496				
haoa호오아 (58)	1481		1632		
haoya호오야 (1)			1632		
haowa호오와 (6)			1632		
haonza호은사 (2)	1475				
haonca호은자 (1)		1518			
hoza호사 (1)		1514			
hooza호오사 (1)	1461				
hooya호오야 (1)			1632		
hoosa호오사 (2)			1637,	1752	
hoonca호은자 (10)		1517		1752	
hoonc ^h a호은차 (1)			1632		
hoınca호은자 (1)		1517			
hoca호자 (1)				1786	
honca혼자 (128)		1517			1900
honca혼자 (13)			1600		1900
honcyahonca혼자 (9)				1749	1876
homcyahomca혼자 (1)					1876
homca혼자 (4)				1778—1795	
haollo호올로 (155)	1459		1632		
hoollo호올로 (13)			1617		1876
hoillo호올로 (2)					1876
hoolno호올노 (2)				1746	
hoilno호올노 (9)					1887
hollo홀로 (130)	1461				1876

▼hankalkat^h한글꺄티(hankyelkat^h한결꺄티)▼155 consistently

	15c	16c	17c	18c	19c
hankalkat ^h 한글꺄티 (62)		1517		1792	
hankalkac ^h 한글꺄치 (6)				1761—1792	
hankalat ^h 한글꺄티 (1)			1617		
hankalkasti한글꺄디 (1)				1745	
hankalkasti한글꺄디 (3)				1741—1792	
hankalkasci한글꺄지 (3)				1777—1788	
hankalkasc ^h 한글꺄치 (15)				1746—1784	
hankalkast ^h 한글꺄티 (26)			1632	1797	
hankalzat ^h 한글꺄티 (1)			1617		
hankalat ^h 한글꺄티 (41)	1461		1635		

hankalatt ^h i 혼곶오티 (1)	1517	
hankalkatt ^h i 혼곶곶오티 (12)	1586	1749
hankalkatti 혼곶곶디 (4)	1586	1632
hankalac ^h i 혼곶옹치 (1)		1612
hankelkac ^h i 혼곶곶치 (1)		1783
hankelkasc ^h i 혼곶곶곶치 (1)		1782
hankilkasc ^h i 한글곶곶치 (1)		1887
hankalkat ^h i 혼곶곶치 (1)	1632	

▼hamskiy 함씨(함께) ▼156 together (with)

	15c	16c	17c	18c	19c
hampskiy 혼씨 (234)	1447		1637		
hanskiy 혼씨 (4)			1632	1752-1776	
hamkiy 함씨 (21)			1600		1869
hamskiy 함씨 (327)		1500			1900
hampskiy 혼씨 (4)		1500	1632		
hamk ^h ey 함께 (1)			1656		
hamk ^h ua 함과 (1)		1500			
hamkiy 함과 (1)				1796	
hamskiy 함씨 (175)				1737	1895

▼hagsyan 함상(hagsan 함상) ▼157 always

	15c	16c	17c	18c	19c
hagsan 함상 (1)				1795	
hagsyan 함상익 (1)		1577			
hagsyan 함상 (99)		1575			1900
hagsyen 함성 (1)				1796	
hagsan 함상 (17)					1852-1895
hagsyan 함상 (22)					1880

▼hayghye 함혀(haygye 함여) ▼158 by chance

	15c	16c	17c	18c	19c
hayghye 함혀 (7)	1461	1500			
hayghye 함혀 (139)		1517			1876
haygye 함여 (8)			1600	1774	
highye 함혀 (1)				1774	
haygye 함여 (0)					
haygyena 함여나 (1)					1895

3. Examples of Lexical Diffusion in Korean

The following is a classification of the phonological changes based on our close examination of word frequency done in the preceding section. Besides applied examples (pros) and counterexamples (cons) to a certain change, there are some 'in-between' examples (intermediate) in which appearances of a change are too close to claim any definite precedence and periodically co-occur within the time span of 30 years that is roughly the duration of speakers' generation.

(summarized list of investigation)

Table A. vocalic changes

	pros(application)	intermediates	cons	
1 ʌ>a(·>ㅏ) in initial syllable	16	1	1	changes of ʌ
2 ʌ>i(·>ㅑ) in noninitial syllable	22	5	13	
3 ʌ>o(·>ㅓ) in noninitial syllable	4	10	7	
4 o>u(ㅓ>ㅗ)	13	5	2	others
5 word-final o>i(ㅓ>ㅑ) before m	7			
6 i>u(ㅑ>ㅗ)	4	4		
7 regressive assimilation by i (i. e. umlaut)	3	4	4	
8 ʌ, i > i(·, ->ㅣ) in the second syllable	4		1	
9 yey>ey(ㅕ>ㅖ)	2	3	3	monophthongization
10 ya>a(ㅑ>ㅏ)	1	7	3	
11 yə>a(ㅑ>ㅏ)	6	5		
12 yo>o(ㅓ>ㅗ)	2		3	

Table B. consonantal changes

	pros(application)	intermediates	cons	
13 β>θ(ㅃ>ㅍ) before i(ㅣ)	12			weakening
14 intervocalic z>θ(ㅈ>ㅍ)	11			
15 hh>h(ㅍ>ㅍ)	1	1		
16 cc>c[sc](ㅈ>ㅈ)	2			
17 syllable-final s>t(ㅅ>ㅈ)	8	1	5	others
18 t/th>c/ch(ㅈ>ㅈ) before i/y(ㅣ): palatalization	7	1	3	
19 l>n(ㄹ>ㄴ)	2			
20 k>s(ㅋ>ㅌ) before i(ㅣ)	5	1	3	
21 intervocalic h>θ(ㅎ>ㅍ), mostly -hi>-i(-ㅍ>-ㅍ)	6	5	9	weak.

A. Vocalic Changes

3.1. $\Delta > a(\cdot > \uparrow)$ in the initial syllable

Among the items in the list for investigation above, we first show the examples of $\Delta > a(\cdot > \uparrow)$ in the initial syllable in the vocalic changes. The years in parentheses are for the forms to be changed, and those that come after the vertical bar ('|') are for the forms that have been changed. The words have been presented according to the order of the year in which the rule has first applied. The numbers at the end of each paired words refer to the number of the changed forms out of the total, e.g. atak '1/29' means that there is 1 form changed out of total 29; calo '13/437' means that 13 (calo 8 + later forms caco 3 + cacu 2, i.e. all allomorphs that experienced a change $\Delta > a \cdot > \uparrow$) are changed out of total 437. This rate sometimes comes out in number 0 lower than expected, but what is important is to show the trend of the change. Whether the number is over or under the expectation is something to be considered in the conclusion of this study.

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
calo 조로(93)	(1447	_____			1876)	
calo 자로(8)			1600	_____	1895	13/437
2)						
chama 차마(172)	(1447	_____			1882)	
chama 차마(10)			1600	_____	1895	13/375
3)						
machamnay 마춤내(282)	(1447	_____			1797)	
machamnay 마춤내(3)			1632	_____	1852	14/720
4)						
hankalkat ^{hi} 한굴매티(62)		(1517	_____		1792)	
hankalkat ^{hi} 한굴매티(1)			1632			2/196
cf. hankalkasti 한굴갓디(1)				1745		
5)						
hamalmye 함몰며(353)	(1447	_____			1792)	
hamalmye 함몰며(2)			1658,	1737		15/711
6)						
payahilo 바야호로(78)			(1617	_____	1852)	
payahilo 바야호로(20)			1700	_____	1887	20/340
7)						
chalhali 출하리(78)	(1464	_____			1900)	
chalalo 차라로(1)			1728			5/160
8)						
hayekom 하여곰(876)	(1517	_____			1900)	
hayekom 하여곰(2)			1736,	1792		3/1258
9)						
hamskiy 흙피(327)	(1500	_____			1900)	

hamskiy 함피(175)	1737 — 1895	176/768
10)		
macamak 막작막(18)	(1459 ————— 1900)	
macimmak 마즘막(1)	1763	10/31
cf. macamak 막작막(1)	1795	
11)		
palsye 불셔(182)	(1461 ————— 1852)	
palsye 발셔 (22)	1763 — 1900	22/233
12)		
chalzeylo 차레로(41)	(1481 ————— 1900)	
chalzeylo 차레로(3)	1772, 1778	3/48
13)		
camo 조모(152)	(1463 ————— 1796)	
camos 자못(4)	1796 — 1852	4/264
14)		
nacaki 누끼(80)	(1459 ————— 1772)	
nacaki 나작이(1)	1805	1/93
15)		
hansyan 향상(99)	(1575 ————— 1900)	
hansan 향상(17)	1852—1895	39/141
16)		
halyhye 핑혀(7)	(1461 — 1500)	
haynyena 행여나(1)	1895	1/156

From the above we can see that the change of $\Delta > a(\cdot > \vdots)$ has gradually spread between 1600 and 1895. This change occurs to all 16 words examined, without exception. There are only 16 example words in the above because we limited our investigation to adverbs, but the same change could be observed almost without exception if we look into groups of words under other grammatical categories.

An example that has been regarded as intermediate in the list for investigation is the following:

17) casyeyhi 조세히(79) 1482 — 1900 casyehi 자셔히(2) 1496, 1670

This cannot be considered as a very good example of $\Delta > a(\cdot > \vdots)$ since we do not think 14 years (1496 minus 1482) are not long enough to claim a change established through a generation, that is about 30 years, although this example is not counter to the general direction of phonological change under this rule. The following one, on the other hand, is a counterexample in which $a(\vdots)$ shows up earlier than $\Delta(\cdot)$.

18) cayenhi 자연히(3) 1446 cazyenhi 존연히(10) 1489 — 1517

Here are some examples of $\Delta > a(\cdot > \vdots)$ in the noninitial syllable. Just for the reference they will be shown in the same order: pro, intermediate, and con. At first, four pros:¹

1)				
ataki 아득기(7)	(1459 ————— 1632)			
cf. atak 아득(4)	1575			
atak 아탁(1)	1575			1/29
2)				
yosai 요사이(151)	1517 ————— 1881			
yosai 요사이(3)	1676 ————— 1895			3/180
3)				
sela 서라(528)	(1475 ————— 1795)			
sela 서라(1)	1744			1/3035
4)				
cyekintas 처근닷(2)	(1600 — 1772)			
cyekintas 처근닷(2)	1776			2/47

Two intermediates: the starting years of two different forms are the same.

5) ayyalasi 애야랴시(2)	1481, 1632	ayyala 애야라(4)	1481, 1632
6) aolna 아올나(1)	1887	aulna 아올나(1)	1887

One con:

7) honca 혼자(128)	1517 — 1900	honca 혼좃(13)	1600 — 1900
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3.2. $\Delta > i(\cdot > \dashv)$ in the noninitial syllable

Below we list first 22 lexical items in chronological order, which is followed by 13 examples of $i > \Delta(\dashv > \cdot)$, that is, words in which $i(\dashv)$ shows up earlier than $\Delta(\cdot)$.

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
taman 다몬(166)	(1447 ————— 1776)					
tamin 다몬(28)	1500 ————— 1869					28/1044
2)						

¹ I am grateful that an anonymous reviewer of this manuscript in English pointed out that these 'four pros' occur in the noninitial syllable whereas I hastily counted them as examples in the initial syllables. In my manuscript in Korean these four examples were counted as pros in the initial syllables inadvertently. While reading that Korean version published in 'the Journal of Humanities, Seoul National University, No. 41: 59-109,' replace that part with this newly arranged list of 16(pros)-1(intermediate)-1(con).

melccaki 멀쨌기(1)	(1489)		
melcisi 멀즈시(2)		1500, 1670	6/8
3)			
etiystan 어되쨌(3)	(1475 — 1517)		
etiystin어되쨌(1)		1517	1/33
4)			
ancak 안죽(48)	(1447 ————— 1749)		
ancik 안죽(8)		1517—1586, 1632	11/463
5)			
alamtye 아롬더(9)	(1461 ————— 1632)		
alimtye 아롬더(3)		1518	5/14
6)			
hamalmye 함몰며(353)	(1447 ————— 1792)		
hamalmye 함몰며(320)		1586 ————— 1900	330/711
7)			
poyyahalo 뵤야호로(65)	(1447 ————— 1737)		
poyyahilo 뵤야호로(6)		1586 ————— 1737	208/340
cf. poyahalo 보야호로(31)	(1461 ————— 1737)		
poyahilo 보야호로(67)		1586 ————— 1792	
8)			
pala 바락(305)	(1459 ————— 1737)		
pali 바르(2)		1632, 1676	2/480
9)			
nacaki 늑즈기(80)	(1459 ————— 1772)		
naciki 늑즈기(3)		1635, 1670 1765	3/93
10)			
alamtai 아롬다이(61)	(1465 ————— 1852)		
alimtai 아롬다이(3)		1658 1736 1876	5/72
11)			
camas 즈뭇(23)	(1586 ————— 1792)		
camis 즈뭇(24)		1658—1758	25/264
cf. camat 즈뭇(4)		(1617—1752)	
camit 즈뭇(1)		1748	
12)			
yocalam 요즈옴(3)		(1632—1669)	
yociim 요즈옴(1)		1670	1/18
13)			
canakcanaki			
즈늑즈늑기(31)	(1447 ————— 1632)		
canikcanik			
즈늑즈늑(2)		1728, 1763	2/36
14)			
saltali 솔드리(1)		(1649—1659)	
saltili 솔드리(1)		1728	5/6
15)			
mac ^h amnay 뭇츨내(720)	(1447 ————— 1797)		
mac ^h imnay 뭇츨내(2)		1728, 1765	2/720
16)			
onalsnal 오닐날(66)	(1447 ————— 1632)		
onilnal 오닐날(4)		1737 — 1881	4/146
17)			
molamay 모랴매(1)		(1632)	
molimi 모림이(2)		1763—1777	11/1103

18)				
cyekint _{as} 처근돏(2)	(1600,	1772)		
cyekintis 처근돏(2)		1764		2/47
19)				
macamak 막즈막(18)	(1459 —————	1900)		
macimak 막즈막(1)		1768 ²		10/31
cf. macamak 막즈막(1)		(1795)		
macimak 막즈막(8)		1869—1887		
20)				
atak ^h _i 아득히(10)	(1459 —————	1632)		
atik ^h _i 아득히(2)		1795	1882	2/29
21)				
tolahye 도르혀(277)	(1465 —————	1737)		
tolihye 도르혀(2)		1880—1881		2/752
22)				
hankalal ^h _i				
한글으리(41)	(1461 —————	1635)		
hankalkasc ^h _i				
한글갈치(1)		1887		1/196

In contrast to these 22 examples, there are 13 examples in which change occurs in the reversed direction of $i > \Delta (- > \cdot)$ or the forms with $i(-)$ show up before the forms with $\Delta(\cdot)$ are found. It is quite possible that these are examples of retro-orthography that occur in analogy with the change $\Delta > i(\cdot > -)$.

23) kut ^h _i yye 구퓌역(293)	1447 — 1752	kut ^h _{ay} ye 구퓌역(33)	(1617 — 1758)
24) nencisi 년지시(13)	1463 — 1728	nencasi 년즈시(1)	(1797)
25) mulis 무룻(146)	1682 — 1881	mulas 무룻(36)	(1756 — 1788)
26) palypili 퓌브르(23)	1481 — 1758	palypila 퓌브르(1)	(1517)
27) sisilo 스스로(632)	1467 — 1796, 1895	sisalo 스스로(819)	(1617 — 1900)
sasilo 스스로(1)	1774		
28) sihak 시혹(1)	1465	sihak 시혹(1)	(1500) ³
29) ecilei 어즈러이(165)	1461 — 1882	ecalei 어즈러이(4)	(1600 — 1617)
30) izikko 이속고(29)	1463 — 1518	ilakko 이속고(1)	(1617)
31) imiy 이피(709)	1500 — 1895	imay 이피(19)	(1600 — 1736)
32) it ^h isnal 이툏날(17)	1447 — 1881	it ^h annal 이툏날(41)	(1617 — 1772)
33) ilcik 일죽(784)	1461 — 1895	ilcak 일죽(79)	(1736 — 1900)
cf. ilcaki 일죽기(2)	(1632 — 1670)		
34) cimcis 짐츠(47)	1475 — 1880	cimcas 짐츠(3)	(1677 — 1761)
35) c ^h eim 처옴(46)	1632 -- 1900	c ^h eam 처옴(6)	(1690 -- 1777)

In addition to these examples, there are five more intermediate examples

² Note that the duration of $\Delta(\cdot)$ is much longer than that of $i(-)$ in this example.

³ Only one example is found, which could mean that it is a misspelling of the absolutely frequent 'sihok(시혹).

in which appearances of $\Lambda(\cdot)$ and $i(-)$ in the noninitial syllable periodically overlap within the time span of 30 years.

36) pantaki 반득기(1446)	1459—1637	pantiki 반드기(1)	1463
cf. pantasi 반득시(1556)	1481—1900	pantisi 반드시(16)	1517—1876
37) pentaki 번득기(1)	1463	pentiki 번드기(50)	1447—1632
cf. pentasi 번득시(3)	1608—1746	pentisi 번드시(10)	1461—1761
38) sela 서랴(528)	1475—1795	seli 서르 (1930)	1447—1749
39) milas 므랴(36)	1600—1900	milis 므룻(146)	1600—1900
40) molomcaki 모롬죽이(2)	1761—1788	molomciki 모롬죽이(18)	1736—1881

Judging from the distributional rate of pros, cons and intermediate examples, we can see that the change of $\Lambda \rightarrow i(\cdot > -)$ in the noninitial syllable has not been a dominating trend. Rather the rule has been gradually diffused, eventually to apply to two thirds of the lexical items between 1500 and 1887.

3.3. $\Lambda > o(\cdot > -)$ in noninitial syllable

We find for this change 4 examples of application and 10 intermediate examples, while there are 7 counterexamples. This distribution suggests that contrary to what is generally believed, it is difficult to say that the change is a well established rule in the history of Korean. The 4 examples of application are:

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
poyyahalo 피야호로(65)	(1447	—————			1737)	
poyyaholo 피야호로(14)		1517	—	1669		31/340
cf. poyyahalo 피야호로(2)			(1617,	1736)		
poyyaholo 피야호로(1)				1749		
2)						
ayyalasi 애야라시(2)	(1481,		1632)			
ayyalosi 애야로시(1)		1588				3/24
3)						
kolai 고라이(2)	(1463, 1481)					
koloi 고로이(7)			1608	—————	1887	42/44
4)						
paypila 빅브라(1)	(1517)					
paypilo 빅브로(2)			1632			3/55

The 10 intermediate(in-between) examples are the followings, which appear almost at the same period.

5) ka β antay 가온타(2)	1459	kaontay 가온타(605)	1447 ——— 1900
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6) kaskalo 갓마로(30)	1459 — 1632	kaskolo 갓고로(33)	1447 — 1795
7) tolshye 도럭혀(277)	1465 — 1737	tolohye 도럭혀(398)	1481 — 1900
8) pal 바락(305)	1459 — 1737	palo 바로(173)	1482, 1600 — 1900
9) sel 서럭(528)	1475	selo 서로(487)	1459 — 1900
10) syukolai 슈고라이(1)	1462	syukoloi 슈고로이(26)	1481 — 1881
11) olo 오로(43)	1447 — 1632	oolo 오오로(8)	1481 — 1752
12) oyloi 외로이(10)	1463 — 1632	oyloi 외로이(24)	1481 — 1876
13) cozalai 조승라이(2)	1465	cozoloi 조승로이(1)	1481
14) halβaza 할벡사(2)	1445	haoza 호오사(253)	1447 — 1496
cf. hooza 호오사(1) 1461, hoza 호사(1) 1514			

In the following 7 examples, unlike the preceding examples of $\Lambda > o(\cdot > \perp)$, forms with $o(\perp)$ in the noninitial syllable show up earlier than those with $\Lambda(\cdot)$. These are the examples of original $o(\perp)$ hypercorrected as retro-orthographic $\Lambda(\cdot)$ when the loss of $\Lambda(\cdot)$ began to come into effect. In other words, forms with orthographic $\Lambda(\cdot)$ below might not be pronounced with actual $\Lambda(\cdot)$ since $\Lambda(\cdot)$ was already lost.

15) molomay 모로매(768)	1447 — 1752	molamay 모락매(1)	(1632)
16) poyaholo 보야호로(16)	1517 — 1792	payahalo 벅야호로(3)	(1617)
cf. poyahalo 보야호로(31)	1461 — 1737		
17) sonzo 손소(41)	1447 — 1876	sonca 손즈(2)	(1677)
18) sihok 시혹(888)	1447 — 1752	sihak 시혹(1)	(1500)
19) aolo 아오로(108)	1463 — 1852	aola 아오락(2)	(1887)
20) aco 아조(74)	1576 — 1900	aca 아즈(1)	(1608)
21) yocozom 요조숨(4)	1586 — 1632	yocalam 요즈옴(3)	(1632 — 1669)

If the distribution rate is not limited to the adverbs, the change of $\Lambda > o(\cdot > \perp)$ in the noninitial syllable can be regarded as a phenomenon that occurred under a very limited, peculiar environment rather than having undergone a full scale lexical diffusion.

Here are two examples of $\Lambda > o(\cdot > \perp)$ in the initial syllable just for the reference.

1)			the rate (the number of changed forms/total)
camo 줌로(152)	(1463 — 1796)		
como 조모(1)	1583		1/264
2)			
halolo 홀로로(155)	(1459 — 1632)		
hoolo 홀로로(13)	1617 — 1876		328/807
cf. hollo 홀로(130)	1461 — 1876		

3.4. o>u(ㅅ>ㅈ)

The raising of o to u begins to show up from the 16th century with the example 'ceykum (제굼),' but a great majority of the examples for this change are found between 1700 and 1895. This change has been very dominant in Seoul dialect above all.

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
ceyyekom 제여굼(99)	(1447	—————	1632)			
cf. ceykom 제굼 (5)		(1517	—————	1664)		
ceykum 제굼 (2)		1576,	1700			2/115
2)						
selo 서로 (487)	(1459	—————	—————	1900)		
selu 서루 (1)			1700			1/3035
3)						
amoli 아모리 (48)			(1600	—————	1852)	
amuli 아무리 (20)				1728	1876	20/93
4)						
kaskolo 갓고로 (33)	(1447	—————	1795)			
keskulo 겓구로 (4)			1741—1795			11/74
5)						
moto 모도 (102)	(1447	—————	—————	1900)		
motu 모두 (5)				1774	1887	5/629
6)						
mayo 디오 (45)	(1461	—————	—————	1869)		
mayu 디우 (11)				1880—1900		12/157
7)						
paypilo 비브로 (2)			(1632)			
cf. paypulokey 비부루게 (1)				(1741)		
paypulukey 비부루게 (1)				1887		2/55
8)						
maco 마조 (94)	(1447	—————	—————	1887)		
macu 마주 (4)				1887, 1895		4/98
9)						
caco 조조 (331)	(1447	—————	—————	1876)		
cacu 조주 (1)				1869		3/437
cf. caco 자조 (3)					(1900)	
cacu 자주 (2)				1887		
10)						
aolo 아오로 (108)	(1463	—————	—————	1852)		
cf. aolna 아올나 (1)				1887		
aulna 아올나 (1)				1887		1/115
11)						
sonso 손소 (13)			(1617	—————	1852)	
sonsu 손수 (1)				1895		1/122
12)						
aco 아조 (74)		(1576	—————	1900)		
acu 아주 (1)				1895		1/76
13)						
tomoci 도모지 (17)			(1748	—————	1900)	
tomuci 도무지 (1)				1895		1/19

Unlike the above 13 examples, we have 5 examples whose variant forms almost overlap periodically.

14) kyeyo 계오(18)	1517 — 1796	kyeyu 계우(24)	1500 — 1883
15) teok 더욱(595)	1447 — 1900	teuk 더욱(436)	1447 — 1900
16) piloso 비로소(212)	1481 — 1900	pilusu 비루수(11)	1481 — 1632
17) yocozom 요조숨(4)	1481 — 1500	yocuzum 요주숨(1)	1481
18) cicilo 지즈로(94)	1481 — 1632	cicilu 지즈루(4)	1481 — 1632

There are also two examples in which the forms, with u(ㅜ) show up earlier than those with o(ㅓ).

19) tulu 두루(234)	1447 — 1900	tulo 두로(130)	1517 — 1900
cf. tulu 둘우(2)	1586, 1794	tulo 둘오(1)	1763
20) mulus 물웃(1)	1613	mulos 무럿(1)	1658

The raising of o>u(ㅓ>ㅜ) is well established from the above examples where 18 examples show either application of the rule or the intermediate variation stage of the change.

3.5. -om>-im(-ㅓ>-ㅛ) in the word-final position

The change of the suffix -om(-ㅓ) to -im(-ㅛ) or -kom(-ㅓ) to -kim(-ㅛ) at the end of a word also shows the gradual periodic diffusion.

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
cyokom 조곰(28)			(1608 — 1869)			
cyokim 조곰(7)			1600 — 1887			9/63
cf. cokom 조곰(26)			(1752 — 1900)			
cokim 조곰(2)				1895		
2)						
yocozom 요조숨(4)	(1481—1500)					
yociim 요즈흠(1)			1670			1/18
3)						
hayekom 햅여곰(876)		(1517 — 1900)				
hayekim 햅여곰(32)			1682 — 1887			45/1258
cf. hayakom 햅야곰(92)		(1500 — 1900)				
hayakim 햅야곰(11)				1736—1882		
cf. hayyekom 햅여곰(232)	(1475 — 1796)					
hayyekim 햅여곰(2)				1783		
4)						
silekom 시러곰(489)	(1481 — 1887)					
silekim 시러곰(10)				1736—1887		10/499
5)						
ceyyekom 제여곰(99)	(1447 — 1632)					
ceykim 제곰(1)				1763		1/115

6)				
kaskom	갸곰(11)	(1657 — 1752)		
kaskim	갸금(1)	1795		1/12
7)				
tasikom	다시곰(57)	(1447 — 1778)		
tasikim	다시금(3)		1876	3/64

Concerning this rule, no examples are found to be against it nor is there any example that could be regarded as being intermediate between pros and cons of the rule.

3.6. i>u(→ㅓ)

The following four are examples of i(→) being labialized after a consonant such as p(ㅍ), m(ㅁ), l(ㄹ), and c(ㅈ).⁴

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
pilisō	비르소(24)	(1467 — 1887)				
pilusō	비루소(3)	1517	1608—1632			14/569
2)						
milis	므릿(146)		(1600 — 1900)			
mulis	무릿(32)		1682	1881		49/804
cf. milas	므릿(36)		(1600 — 1900)			
mulas	무릿(11)		1756—1788			
cf. miliys	물릿(546)	(1447 — 1796)				
mulis	물릿(2)	1465,		1721		
3)						
māntik	문득(755)	(1447 — 1900)				
muntik	문득(91)		1617	1900		92/921
cf. mintis	문득(20)	(1481 — 1632)				
muntis	문득(1)		1776			
4)						
paypilikey	빅브르게(7)	(1475 — 1758)				
cf. paypilokey	빅브로게(1)		1741			
paypulukey	빅부루게(1)			1887		12/55
paypulikey	빅부르게(5)			1887		

The followings are the intermediate examples within 30 year span of change. An example that occurs after c(ㅈ), e.g. 5), has also been included.

5) cizim	즈슴(5)	1463 — 1569	cuzum	주슴(8)	1481
ciām	즈슴(23)	1617 — 1900	cuum	주움(3)	1632
6) pilisu	비르수(24)	1481 — 1632	pīlusu	비루수(11)	1481 — 1632

⁴One may exclude liquid l and affricate c on purpose in order to regard this labialization as phonetically-motivated exclusively before labial p and m.

7) picyelepsi 브절업시(3)	1669 — 1721	pucyelepsi 부절업시(18)	1669 — 1852
8) picileni 브즈러니(215)	1447 — 1795	pucileni 부즈러니(7)	1721 — 1790

3.7. regressive assimilation by i(ㅣ) (umlaut)

First, we find 3 examples that undergo umlaut before the front vowel i.

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
eyespi 어엿비 (320)	(1447 ————— 1887)					
eyeyspi 어엿비 (2)	1496, 1500					3/423
eyyeyspi 에엿비 (1)		1517				
cf. eyyespi 에엿비 (1)		1500 ————— 1783				47/423
2)						
ohilye 오히려 (1471)	(1447 ————— 1900)					
oyhilye 외히려 (6)		1579 — 1617				6/1663
3)						
nooyya 노의야 (4)	(1481 ————— 1690)					
noyya 뇨야 (1)				1869		4/184
cf. noiyye 노의여 (4)	(1500 ————— 1617)					
noyye 뇨여 (3)			1677 — 1764			

The #3) above could be considered a case of simple contraction but since there is a y following it, noy(뇨)- could be regarded as having been formed by umlaut. In the following are four examples in which the intermediate variants appear almost at the same period.

4) puyyahilo 비야호로(28)	1617 — 1852	puyahilo 뵤야호로(1)	1617 — 1852
poyyahilo 뵤야호로(65)	1447 — 1737	poyahilo 보야호로(31)	1461 — 1737
5) sui 수이(275)	1461 — 1852	suyi 쉬이(35)	1461 — 1796
6) ayala 아야라(11)	1481 — 1776	ayyala 애야라 (4)	1481, 1632
7) ceyekom 저여곰(5)	1481 — 1632	ceyyekom 제여곰(99)	1447 — 1632

There are also four examples in which the form that has undergone umlaut shows up earlier than the one that has not.

8) kuthiyye 구튀여(293)	1447 — 1752	kuthiye 구트여(1)	1632
cf. kuthayye 구튀여(33)	1617 — 1758	kuthaye 구트여(14)	1617 — 1797
9) salayye 슨릭여(6)	1677 — 1765	salaye 슨릭여(4)	1765, 1795
salayye 슨릭여(5)	1500 — 1670	salaye 슨릭여(3)	1657, 1795
10) ayalosi 아야로시(1)	1588	ayalosi 아야로시(1)	1632
11) hayyekom 햏여곰(2)	1475 — 1796	hayekom 햏여곰(876)	1517 — 1900
cf. hayyekim 햏여곰(92)	1783	hayekim 햏여곰(32)	1736 — 1882

In the case of the last example #11), although the two pairs appear to be contrary to each other in terms of chronology, the first pair is

absolutely more frequent in use. We have therefore regarded it as a counterexample in which the form with umlaut has preceded the form that has no umlaut. But the problem is that though umlaut is a phenomenon often observed in the spoken language, it is not reflected in the orthography because people often think that use of umlaut is vulgar. For example, umlaut is well reflected in the orthography of 'kumpeyni(곰뱅이)' "maggot" but not in the word 'kenteki(건더기)' "solid ingredient in soup" even though it is often pronounced as 'kenteyki(건테기)' [kəndegi].

3.8. $\Lambda(\cdot)$, $i(-) > i(|)$ in the second syllable

Trivial as they may look, there are a group of examples that show the change of $\Lambda(\cdot)$, $i(-) > i(|)$ after palatal affricate $c(\text{ㅈ})$ in the second syllable from the second half of the 19th century.

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
ecilei 어즈러이(165)	(1461	————— 1882)				
ecalei 어즈러이(4)		1600—1617				
ecilei 어저러이(2)					1883	2/190
2)						
nacaki 느즈기(80)	(1459	————— 1772)				
naciki 느즈기(3)		1635 — 1765				
cf. naciki 나직이(0)					20 c.	0/93
3)						
ilcik 일죽(784)	(1461	————— 1895)				
ilcak 일죽(79)		1736 — 1900				
cf. ilccik 일찍(0)					20 c.	0/1014
4)						
nencisi 년즈시(13)	(1463	————— 1728)				
nencasi 년즈시(1)		1797				
cf. nencisi 년저시(0)					20 c.	0/15

The examples of 1), 3) and 4) where $i(-)$ in the second syllable is written into $\Lambda(\cdot)$ as well are hypercorrected retro-orthographies in relation to the loss of $\Lambda(\cdot)$. The following example, on the other hand, is a hypercorrection against the vowel fronting after the palatal affricate $c(\text{ㅈ})$. That is, it is a counterexample in which $ci(\text{ㅈ})$ shows up later than $ci(\text{ㅅ})$. All five items from 1) to 5) end up with $ci(\text{ㅅ})$ or $cci(\text{ㅈ})$ in the 20th century.

5) ocik 오직(2868)	1447 — 1900	ocik 오죽(9)	1876 — 1883
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3.9. yey > ey(ㅔ > ㅖ)

The following group of words are examples in which 'yey(ㅔ)' orthographically changes to 'ey(ㅖ)'.⁵

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
syapsiyeย 샹시예(8)			(1600 — 1746)			
syapsieย 샹시에(7)			1758—1797			7/41
2)						
casyeยhi 존세히(79)	(1482	—————			1900)	
caseyhi 존세히(1)			1792			8/191
cf. casyeยi 존세이(8)			(1632 — 1852)			
caseyhi 존세이(1)			1852			
cf. casyeยhi 자세히(2)			(1748 — 1887)			
caseyhi 자세히(3)			1887			

There are also intermediate examples that are difficult to judge which of the two variants came first because the forms with ey(ㅖ) and those with yey(ㅔ) periodically overlap.

3) syaenyeย 샹네(270)	1447 — 1518	syagneย 샹네(4)	1465 — 1496
4) estyeย 엇대(1873)	1447 — 1776	esteyย 엇대(5)	1465 — 1496
5) monceyย 몬제(6)	1447 — 1632	monceyย 몬제(1)	1461

Three counterexamples have been found in which 'ey(ㅖ)' precedes 'yey(ㅔ)'.

6) cikceyย 족제(179)	1489 — 1790	cikcyeyย 족제(2)	1617, 1632
7) enceyย 언제(97)	1447 — 1900	encyeyย 언제(6)	1764 — 1895
8) aiyeย 아이예(4)	1736 — 1783	aiyeyย 아이예(4)	1777 — 1792

Judging from the present form, phonetically⁵ 'yey(ㅔ)' must have been neutralized to the monophthong 'ey(ㅖ)'. Even orthographically the direction of change only in 6), 7) and 8) seems to have been 'ey > yey(ㅔ > ㅖ)', which suggests retro-orthography, while 1), 2), 3), 4), and 5) show yey > ey(ㅔ > ㅖ).

⁵ Although there is not any record of phonetic evidence, considering the historical trend of monophthongization based on 3-9, 10, 11, 12 (yey, ya, yə, yo > ey, a, ə, o), this explanation with neutralization is quite plausible. One may try to explain this sound change from ey to yey, reverse to the above direction. However, it is far less convincing because the total of 3-9, 10, 11, 12 (yey, ya, yə, yo > ey, a, ə, o) by pros vs. cons. is 11 (2+1+6+2) vs. 9 (3+3+0+3) and it is reasonable not to reverse this statistical result as well as historical evidence. Cf. Table of summarized list A. vocalic changes.

3.10. $ya > a$ (ㅑ > ㅓ)

If we assume the direction of change from ya (ㅑ) to a (ㅓ), there is only one example for it.

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
həŋsyaŋ 흥상(99)		(1575	—————		1900)	
həŋsaŋ 흥상(1)				1795		18/141

But there are 7 intermediate examples,

2) camskyan 값간(1)	1463		camskan 값간(192)	1447 ——— 1632
3) syaŋnye 상네(782)	1447 ——— 1518		syaŋne 상네(4)	1465 ——— 1496
4) cyemcyem 점점(171)	1466 ——— 1900		cemcem 점점(7)	1466 ——— 1895
5) tyəŋsyaŋ 당상(30)	1461 ——— 1500		tyəŋsaŋ 당상(1)	1489
6) tamantyaŋ 다만당(1)	1758		tamantaŋ 다만당(2)	1728, 1763
7) cyanstik 잔측(1)	1790		canstik 잔측(1)	1768
8) həŋsyaŋ 향상(22)	1880		həŋsaŋ 향상(17)	1852 ——— 1895

while there are three counterexamples.

9) hloa 호오아(58)	1481 ——— 1632		hloya 호오야(1)	1632
honca 혼자(128)	1517 ——— 1900		honcyä 혼자(9)	1749 ——— 1876
10) chəma 차마(189)	1586 ——— 1882		chəmyä 차야(1)	1756
11) silkhəcaŋ 슬크장(6)	1728 ——— 1763		silkhəcyəŋ 슬크장(2)	1876

3.11. $ye > e$ (ㅕ > ㅓ)

There are 6 examples for the change $ye > e$ (ㅕ > ㅓ).

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
pəlsye 불서(182)	(1461	—————			1852)	
alse 불서(1)			1600			3/233
cf. pəlsye 발서(22)				(1763 ——— 1900)		
pəlse 발서(2)					1895	
2)						
syelpkey 설게(10)	(1463	—————		1795)		
selpkey 설게(1)			1600			1/21
3)						
kuthiyye 구티어(293)	1447 ———			1752)		
kut ^h əye 구티어(1)			1632			1/395
4)						
esyē 어서(67)	(1447	—————			1852)	
ese 어서(2)					1876	2/69
5)						
chyenchyeni 천천이(13)			(1600	—————	1869)	
c ^h enc ^h eni 천천이(1)					1895	1/14

6)

mencye 먼져(13)

(1758 — 1887)

mence 먼져(1)

1895

1/1665

Five intermediate examples are found.

7) moncye 몬져(1573)	1447 ——— 1900	monce 몬져(22)	1467 ——— 1792
8) syeli 서르(1)	1463	seli 서르(1930)	1447 ——— 1749
9) chyezem 처엄(3)	1465 ——— 1576	chezem 처엄(487)	1447 ——— 1579
10) cyenhye 천혀(173)	1447 ——— 1882	cenhye 천혀(5)	1459 ——— 1763
11) cyemcyem 점점(171)	1466 ——— 1900	cemcem 점점(7)	1466 ——— 1895

3.12. yo>o(ㅛ>ㅕ)

In general, there are two examples of yo>o(ㅛ>ㅕ),

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
cyoyoghi 조용히(5)			(1676 ——— 1777)			
coyoghi 조용히(1)			1700			3/50
cf. cyogyoghi 풍용히(37)		(1517 ———		1900)		
cogyoghi 풍용히(1)			1748			
cf. cyogyogi 풍용이(5)			(1748 ——— 1900)			
cogyogi 풍용이(1)				1852		
2)						
cyokom 조금(28)			(1608 ——— 1869)			
cokom 조금 (26)			1752	1900		28/63
cf. cyokim 조금(7)		(1600 ——— 1887)				
cokim 조금(2)				1895		

while there are three counterexamples.

3) momso 몸소(125)	1586 ——— 1852	momso 몸소(1)	1795
4) piloso 비로소(24)	1467 ——— 1887	pilosyo 비로쇼(7)	1772 ——— 1900
5) sonco 손조(61)	1500 ——— 1876	syoncyo 손쵸(2)	1600, 1876

As a last comment on the vowel, one may merge four kinds of changes from 3-9 to 3-12 into a single cover term 'monophthongization'.

B. Consonantal Changes

3.13. β>Ø (ㅃ > ㅇ)

The letter for the voiced bilabial fricative, β(ㅃ), existed until the mid 15th century (1445-75) and then disappeared. The peculiar point about this change to Ø(ㅇ) is that it occurred almost temporarily rather than gradually, between 1447-81 which is within the time span of one generation (about 30

years).⁶ The first two examples below show a change from $\beta\Delta(\text{ㅈ})$ to $\circ(\text{ㅈ})$. Otherwise, $\beta i(\text{ㅈ})$ changes to $i(\text{ㅈ})$.

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
h Δ β Δ za ㅎ불ㅅㅅ(2)	(1445)					
h Δ oza ㅎ오ㅅㅅ(253)	1447—1496					506/807
2)						
ka β antay 가쁜더(2)	(1459)					
kaontay 가온더(605)	1447				1900	961/963
3)						
kaska β i 갓가비(18)	(1447—1459)					
kaskai 갓가이(163)	1461				1900	163/216
4)						
m Δ y β i 미비(2)	(1447, 1481)					
m Δ y i 미이(65)	1461			1797, 1852		97/157
cf. m Δ β i 미비(1)	(1481)					
mai 마이(32)		1517		1869		
5)						
syel β i 설비(1)	(1459)					
syeli 설이(9)	1461		1676			9/21
6)						
elye β i 어려비(6)	(1459—1467)					
elyei 어려이(58)	1461			1790		58/67
7)						
su β i 수비(19)	(1447—1475)					
sui 수이(275)	1461			1852		314/395
8)						
ecile β i 어즈러비(10)	(1447—1467)					
ecilei 어즈러이(165)	1461			1882		173/190
9)						
alamta β i 아롬다비(1)	(1459)					
alamtai 아롬다이(61)	1465			1852		63/72
10)						
coz Δ la β i 조수룩비(1)	(1467)					
coz Δ lai 조수룩이(2)	1465					17/19
11)						
pot Δ la β i 보드라비(1)	(1447)					
pot Δ lai 보드라이(5)	1475			1632		5/8
12)						
saona β i 사오나비(4)	(1447—1467)					
saonai 사오나이(4)	1481			1797		11/17

⁶ One may claim that all these changes look like 'intermediate' because they occurred within 30 years but that claim is to naive since we know this unconditional change of β occurred without exception in the history of the Korean language. It is a clear case toward the disappearance and one should not reserve his judgment in the category of 'intermediate.'

3.14. z>Ø (Δ > ○)

The loss of intervocalic z(Δ) occurred between 1445 and 1579 and much more gradually than the loss of β(ㅂ). The emergence of Ø(○) marked by | in each item of the second line below also took a long time span, being observed between 1481 and 1632.

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
hΛβΛza 항별사(2)	(1445)					
hΛoa 호오아(58)	1481	—————	1632			60/807
2)						
mayzyaq 막양(44)	(1463—1496)					
mayyaq 막양(465)	1481	—————			1900	467/520
3)						
yosazi 요스시(26)	(1459 — 1517)					
yosai 요스이(151)	1517	—————			1881	154/180
4)						
cazyenhi 죽연히(10)	(1489 — 1517)					
cayenhi 죽연히(32)	1517	—————		1796		61/71
5)						
chezem 처엄(487)	(1447 — 1579)					
cheem 처엄(166)	1541	—————		1792		168/723
cf. chyezem 처엄(3)	(1465 — 1576)					
chyem 처엄(2)	1576	—————		1792		
6)						
izikko 이속고(29)	(1463 — 1518)					
iikko 이속고(109)	1586	—————		1881		109/139
7)						
azalahi 아슬라히(40)	(1464 — 1517)					
aalai 아으라이(4)	1586	—————		1721		64/108
aalahi 아으라히(60)			1632			
8)						
yocozom 요조숨(4)	(1481 — 1500)					
yocoom 요조움(4)	1586	—————	1632			10/18
9)						
cuzum 주숨(8)	(1481)					
cuum 주움(3)			1632			26/39
cf. cizim 즈숨(5)	(1463 — 1569)					
cim 즈움(23)			1617	—————	1900	
10)						
sonzo 손소(41)	(1447 — 1518)					
sono 손오(2)			1632			2/122
11)						
cozaloι 조슬로이(6)	(1481)					
coaloι 조으로이(4)			1632			8/19

3.15. hh > h(ㅃ > ㅍ)

The change of hh>h(ㅃ>ㅍ), though its examples are rare, occurred in the

mid 15th century. In the word-initial position, hh>kh(ㅎ>ㅋ) was found as in hhyeta>khyeta(헤다>켜다) "turn on."

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
tolhhye 도르헤(51) (1447—1467)						
tolhhye 도르혀(277)	1465	—————	1737			677/752

When the form with hh(ㅎ) and that with h(ㅎ) overlap periodically, we sometimes find the latter preceding the former, as in the following example.

2) cyenhye 전혀(173)	1447	—	1882	cyenhhye 전혀(1)	1464
cf. cenhye 전혀(5)	1459	—	1763		

3.16. cc>c(ㄷ > ㄸ)

We can see the progression of orthographic cc(ㄷ), which first comes to be written c(ㄸ) or sc(ㄸ) but in the end reverts back to cc(ㄷ) in contemporary Korean.

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
ilccekiy 일찌귀(1)	1459					
ilccik 일죽(3)	1464					
ilcik 일죽(784)	1461	—————			1895	939/1014
cf. ilscik 일죽(54)			1721—1795			
2)						
melccaki 멀쨌기(1)	1489					
melcisi 멀즈시(2)	1500,		1670			2/8
cf. melsciki 멀쨌이(1)			1741			

Judging from the above examples, we can see that cc(ㄷ) and c(ㄸ) were reflected in the orthography at almost the same period.

3.17. s>t(ㅅ>ㅌ) in syllable final position

The following 8 examples show neutralization of s(ㅅ) to t(ㅌ) in syllable final position, that is, before # or consonants.

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
ithisnal 이튿날(17)	(1447	—————			1881)	
ithitnal 이튿날(1)			1600			1/189
2)						
miliys 물윗(546)	(1447	—————		1796)		
miliyt 물윈(4)			1613			4/804

3)			
eyespi 어엿비(320)	(1447 ————— 1887)		
eyetpi 어엿비(6)	1617 — 1752		6/423
4)			
tamas 다못(413)	(1463 ————— 1796)		
tamat 다믄(6)	1617 — 1749		9/567
5)			
camas 죽못(23)	(1586 ————— 1792)		
camat 죽믄(4)	1617 — 1752		11/264
cf. camos 죽못(44)	(1632 ————— 1882)		
camot 죽물(6)	1700—1752		
cf. camis 죽못(24)	1658 — 1758		
camit 죽믄(1)	1748		
6)			
cyanchas 장춧(556)	1517 ————— 1900		
cyanchat 장춘(61)	1617 — 1700		61/764
7)			
cincis 짐춧(47)	1475 ————— 1880		
cincit 짐춘(3)	1632 — 1700		4/156
cf. cincis 진춧(95)	1481 ————— 1852		
cincit 진춘(1)	1617		
8)			
yesthay 옛태(3)	1748—1768		
yetthay엿타(1)	1790		1/12

A group of counterexamples are found in which $t(\text{ㄷ})$ changes to $s(\text{ㅅ})$ in syllable final position. This shows the convention in the orthographic trend of $t(\text{ㄷ})$ unifying to $s(\text{ㅅ})$, contrary to the direction of phonological change in $s > t(\text{ㅅ} > \text{ㄷ})$. As we can see in the group of counterexamples in 9)–13), the surface orthographic change was $t > s$ but it is well-known that phonetically the change of $s > t$ has occurred in the 16th century.

9) motnay 몰내(32)	1447 — 1569	mosnay 못내(18)	1600 — 1895
10) tetteti 텃더디(15)	1461 — 1632	testesi 텃더이(26)	1658 — 1795
11) cyekintet 저근덜(15)	1463 — 1752	cyekintes 저근덜(26)	1600 — 1876
12) mitpi 밀비(14)	1459 — 1632	mispi 밋비(3)	1737
13) pentitsi 번들시(1)	1670	pentissi 번들시(1)	1876

There is also one intermediate example in which it is difficult to judge which came first. It appears that the change $s > t(\text{ㅅ} > \text{ㄷ})$ started already in the 15th century.

14) cyenskat 겹갈(4)	1461 — 1465	cyenskas 겹갸(7)	1459 — 1475
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3.18. palatalization of $t/t^h > c/c^h(\text{ㄷ} > \text{ㅈ} > \text{ㅊ})$ before $i/y(\text{ㅣ})$

Examples of palatalization of $t > c(\text{ㄷ} > \text{ㅈ})$ and $t^h > c^h(\text{ㅌ} > \text{ㅊ})$ before i or y

are found between 17th and 18th century.

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
esti 엇디(2199)	(1459	—————		1883)		
esci 엇치(1540)			1600	—————	1900	1547/5699
cf. estyey 엇메(1873)	(1447	—————		1776)		
escyey 엇체(7)			1632	—————	1746	
2)						
hankalathi 한굴악티(41)	(1461	—————		1635)		
hankalachi 한굴악치(1)			1612			25/196
cf. hankalkathi 한굴꺾티(62)		(1517	—————	1792)		
hankalkachi 한굴꺾치(6)				1761—1792		
cf. hankalkasthi 한굴꺾티(26)			(1632	—————	1797)	
hankalkaschi 한굴꺾치(15)				1746—1784		
3)						
ati 아디(895)	(1475	—————		1797, 1882)		
aci 아지(518)			1632	—————	1900	526/1421
4)						
etiti 어디디(52)	(1459	—————		1746)		
ecici 어지지(16)				1746 — 1882		17/69
5)						
nemti 님디(60)	(1459	—————		1788)		
nemci 님치(6)				1765 — 1887		6/66
6)						
motili 모디리(7)	(1463	—————		1617)		
mocilkey 모질게(1)				1777		1/12
7)						
it ^h yelo 이터로(3)			(1600	—————	1756)	
ic ^h yelo 이쳐로(3)				1790		4/7

An example that could be interpreted as intermediate is the following in which the difference in the time span of appearance is 30 years.

8) tomoti 도모디(1)	1778	tomoci 도모치(17)	1748 — 1900
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Examples that could be against the above palatalization rule are those below in which the forms with c(ㅈ) appears first and those with t(ㅊ) only later in reaction to the rule.

9) moncyē 몬쳐(1573)	1447 — 1900	montye 몬더(34)	1660 — 1794
moncyey 몬체(6)	1447 — 1632	montyey 몬데(1)	1756
10) acik 아직(336)	1447 — 1900	atik 아딕(4)	1600 — 1797
11) ocik 오직(2868)	1447 — 1900	otik 오딕(66)	1632 — 1882

3.19. l>n(ㄹ>ㄴ)

There are two examples of the suffix -lo(로) changing to -(no)노 after a final l(ㄹ) in the preceding syllable, which could be examples of

hypercorrection that has occurred in reaction to the liquidation rule.

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
sillo 실로(133)	(1447	—————			1900)	
silno 실노(109)			1600	—————		109/242
2)						
cinsillo 전실로(528)	(1466	—————			1887)	
cinsilno 전실노(263)			1658	—————		263/795

3.20. k > s(ㄱ > ㅅ)

At first it seemed that the change of 'k/ki(ㄱ/기)→s/si(ㅅ/시)' emerged as the trend mostly before i(ㅣ) and rarely in mintik(문득). However, in the contemporary period some of the examples for this change remained as the form with k(ㄱ) but some (pantisi(반드시), pentisi(번듯이)) as the form with s(ㅅ).

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
pentiki 번드기(50)	(1447	—————			1632)	
pentisi 번드시(10)		1461	—————		1795	15/71
cf. pentaki 번드기(1)	(1463)					
pentasi 번드시(3)			1608, 1670	1746		
2)						
pantaki 반드기(1446)	(1459	—————			1637)	
pantasi 반드시(1556)	1481	—————			1900	1572/3023
cf. pantiki 반드기(1)	(1463)					
pantisi 반드시(16)		1517	—————		1876	
3)						
mintik 문득(755)	(1447	—————			1900)	
mintis 문뒸(20)	1481	—————		1632		21/921
cf. muntik 문득(91)			(1617	—————		1900)
muntis 문뒸(1)				1776		
4)						
melccaki 멀쨌기(1)	(1480)					
melcisi 멀쨌시(2)		1500,	1670			2/8
5)						
nacaki 늑죽기(80)	(1459	—————			1772)	
nacasi 늑죽시(2)		1586				2/93

An example that could be interpreted as intermediate is the following in which the difference in the time span of appearance is about 30 years.

6) nenciki 년즈기(1)	1481	nencisi 년지시(13)	1463 — 1728
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There are three counterexamples in which 's(ㅅ)' shows up earlier than 'k(ㄱ)'.

7) mintisi 몬드시(52)	1481 — 1632	mintiki 몬드기(2)	1632
cf. mintik 몬득(756)	1447 — 1900		
8) ilcisi 일즈시(3)	1500 — 1658	ilciki 일즈기(1)	1608
9) cimcis 짐꿏(5)	1475 — 1880	cimcik 짐꿏(1)	1850 — 1863

3.21. intervocalic h > ø(ㅎ > ㅇ), mostly hi > i(히 > 이)

There are six examples that illustrate the change of h > ø(ㅎ > ㅇ). Most of the following examples are the change of -hi(히) > -i(이). Deletion of intervocalic h started from the fifteenth century (in these adverbs from 1517) and this reduction is still operative today.

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
cazyenhi 존연히(10)	1489	—1517				
caYenni 존연이(26)		1517			1881	26/71
2)						
phenanhi 편안히(51)	(1463			—1783)		
phenani 편안이(30)		1517			1887	30/82
3)						
haypnye 형혀(179)	(1461—1500)					
haynye 형여(8) ⁷			1600	— 1774		9/156
4)						
casyeYhi 존세히(79)	(1482				1900)	
casyeYi 존세이(8)			1632		1852	19/191
5)						
poyyahalo 뵤야홀로(65)	(1447			1737)		
payailo 바야으로(20) ⁸				1736		1/340
6)						
conyoghhi 종용히(37)		(1517			1900)	
conyoyi 종용이(5)			1748	— 1900		6/50

There are five examples in which the form with -hi(히) appears almost at the same period with -i(이), which makes it difficult to judge which came first since they are within 30 years' time difference.

7) mastaphi 맛당히(500)	1467 — 1481	mastapi 맛당이(482)	1459 — 1518
8) siyhi 쇠히 (5)	1481 — 1632	siyi 쇠이(1)	1481
9) azalahi 아슬라히(40)	1464 — 1517	azalai 아슬라이(2)	1481 — 1482
		cf. aalai 아으라이(4)	1586 — 1721
10) pucilenhi 부즈런히(4)	1579 — 1782	pucileni 부즈런이(24)	1586 — 1783 cf. 12)
11) himhimhi 힘힘히(3)	1670 — 1765	himhimi 힘힘이(13)	1669 — 1795

⁷ The change in this example is not hi > i(히 > 이) but hye > ye(혀 > 여), but it is included here as an example of weakening of h(ㅎ).

⁸ This is an example for the contrast not between hi(히):i(이) but rather between hA(히):i(으). It is however included here because it shows the weakening of h (in intervocalic position).

There are 9 counterexamples in which forms with -i(이) precede those with -hi(히).

12) picileni 브즈러니(7)	1447 — 1795	picilenhi 브즈런히(4)	1579 — 1782 cf. 10)
13) tagtaŋi 당당이(119)	1447 — 1496	tagtaŋhi 당당히(10)	1617 — 1887
14) chiki 츠기(29)	1447 — 1632	chikinhi 축은히(7)	1746 — 1900
cf. c ^h ikyeni 축연이 (3)	1756		
15) siyksiyki 식식기(80)	1447 — 1632	siyksiykhi 식식히(6)	1475 — 1797
16) kaskai 갓가이(163)	1461 — 1900	kaskahi 갓가히(34)	1881 — 1900
17) thikpyeli 특별이(127)	1517 — 1881	thikpyelhi 특별히(14)	1745 — 1792
18) epsyui 업슈이(65)	1576 — 1882	epsyui 업슈히(2)	1876 — 1880
19) ataki 아득이(1)	1700	atikhi 아득히(2)	1795, 1882
20) mastagi 맛당이(482)	1517 — 1900	mastaghi 맛당히(500)	1586 — 1900

If we assume the change from -hi(히) to -i(이) as we have done in the above, there are six examples that fit our assumption. Although example 5 does not really illustrate the change -hi(히) > -i(이) because the contrast is between -ha(하) and -i(으), it has been included here as related to the change under the general category of (intervocalic) h weakening. Five examples could be interpreted either way, and nine are against our assumption. It is therefore difficult to say decisively that the direction of change was -hi(히) > -i(이), but since most of the examples except 3), 5), 8), 11), 16), and 18) are originated etymologically from the verbal suffix -hata(하다) "do," we could assume -hi(히) as the original form. This in turn shows that the weakening of intervocalic h was dominant enough from earlier times to be reflected in the orthography and already produced more numbers of -i(이) forms, i.e. cons.

We should also look at, in relation to the above findings, the forms in which -i(이) is morphologically changed to (i.e. is replaced by) -key(게). These forms do not have any relation to -hata(하다) but maybe -ke hata (-게 하다) "cause to do." Followings are the examples found since the 15th century.

	15 c.	16 c.	17 c.	18 c.	19 c.	the rate (the number of changed forms/total)
1)						
tyohi 도히(293)	(1447	_____			1876)	
tyokhey 도케(32)	1447	_____			1900	32/325
2)						
cohi 조히(123)	(1447	_____			1881)	
cokhey 조케(51)	1447	_____		1796		51/174
3)						
khi 키(116)	(1446	_____	1637)			
khikey 크게(606)	1459	_____			1900	606/722

4)				
potlai 보드라이(5)	(1475 ————— 1632)			
potlapkey 보드랍게(2)	1459, 1466			2/8
5)				
elyei 어려이(58)	(1461 ————— 1790)			
elyepkey 어렵게(3)	1463 ————— 1617 — 1790			3/67
6)				
tutkei 둔거이(16)	1463 ————— 1632			
tutkepkey 둔겁게(2)	1517—1586			6/74
7)				
saonai 사오나이(11)	1481 ————— 1797			
saonapkey 사오납게(2)	1517	1900		2/17
8)				
syeli 설이(9)	(1461 ————— 1676)			
syelpkey 설게(10)	1463 ————— 1795			11/21
9)				
tuthei 두터이(50)	(1466 ————— 1862)			
tuthepkey 두텁게(4)	1466 ————— 1772			4/74
10)				
alamtai 아람다이(61)	(1465 ————— 1852)			
alamtapkey 아람답게(5)	1517 ————— 1852			7/72
11)				
etui 어두이(3)	(1463)			
etupkey 어둡게(5)	1658 ————— 1820			17/73
12)				
sui 수이(275)	(1461 ————— 1852)			
suypkey 쉽게(7)	1670 ————— 1900			7/395
13)				
etili 어디리(8)	(1461 ————— 1772)			
etilkey 어덜게(3)	1736			7/23
14)				
syukoloi 슈고로이(26)	(1481 ————— 1881)			
syukolopkey 슈고롭게(7)	1736—1790			7/34
15)				
lepi 러비(3)	(1576, 1579 1637)			
lelpkey 러베게(1)	1736			4/19
16)				
mitpi 민비(14)	(1459 ————— 1632)			
mitpikkey 민브게(4)	1746—1797			4/21
17)				
koyloi 괴로이(23)	(1600 ————— 1881)			
koylopkey 괴롭게(11)	1748 — 1887			11/44
18)				
motili 모디리(7)	(1463 ————— 1617)			
mocilkey 모질게(1)	1777			1/12
19)				
oyloi 외로이(24)	(1481 ————— 1876)			
oylopkey 외롭게(1)	1887			1/35

There is one example in which the form with -i(이) shows up much later than that with -(key)게.

20)

palypilli 박블리(7)

1658—1682

palypilikey 빅브르게(7)

1475 ————— 1758

16/35

4. Discussion

As Harris(1989) summarized, the Neogrammarian position is that sound change is lexically regular, whereas that of Wang(1977) is irregular. We have evidence that at least some changes conform to the classic Neogrammarian case (Labov, Yaeger & Steiner 1972), while sociolinguistic studies have also uncovered examples of on-going lexical diffusion (Milroy 1980).

According to Labov (1981), this paradox can be resolved by distinguishing two levels as follows. Neogrammarian sound change proper takes the form of modifications to low-level phonetic rules, while lexical diffusion occurs at a 'more abstract' level. He also suggests that changes in low-level output rules typically involve such processes as fronting/backing or raising/lowering of vowels and lenition of consonants. Lexical diffusion, in contrast, involves more 'abstract' features such as those implicated in tensing/laxing or lengthening/shortening or diphthongization/monophthongization of vowels and place-of-articulation shifts in consonants.

If we accept two levels mentioned above as universal and applicable to Korean, we may observe the following. Out of 21 changes five (A 5 & B 13, 14, 16, 19 of summarized list) have only pros, i.e. application of rule without intermediates and cons. These five look like to be lexically regular matching to Neogrammarian hypothesis as follows. A 5: om>im is a sort of fronting. B 13: β was abruptly disappeared. B 14: z was gradually disappeared. B 16: cc>c is lenition of consonants. B 19: l>n it looks like a sort of exceptionless strengthening. Among them only two (A 6 fronting and B 16 lenition) match to Neogrammarian cases mentioned in the above paragraph.

On the other hands, A 9-12 are monophthongization processes representing lexical diffusion. However, all other changes do not easily match to the generalization made above with two levels à la lexical phonology. Consequently one may conclude the results of this study as follows.

5. Conclusion

To sum up the results of our quantitative investigation as a conclusion, I would like to point out two findings in line with the theory of lexical diffusion.

The first is that as we have seen in section 2, lexical items change not to a single reflex but often to a group of diverse reflexes. Graphically this can be represented not as Figure 1a but rather as Figure 1b (W: Word. T: Time).

W1	■	□	□	□	□
W2	■	■	□	□	□
W3	■	■	■	□	□
W4	■	■	■	■	□
W5	■	■	■	■	■
	T1	T2	T3	T4	T5

<Fig. 1a>

W1	U	V	V	C	C
W2	U	U	V	V	C
W3	U	U	U	V	C
W4	U	U	U	U	V
W5	U	U	U	U	U
	T1	T2	T3	T4	T5

<Fig. 1b>

In the Figure 1a each lexical item changes from ■ to □ at once, but a more realistic picture would be the Figure 1b where the original form U(unchanged) shows variation first (represented as V(variant)), then converts into the changed form C(changed). Note U in Figure 1b is a residue form.

As has been shown in many lexical items in section 2, the variant forms V1, V2, V3, etc. can be represented as in Figure 2.

W1	□	△△	△△	△	△
W2	□	□	△△	△△	△
W3	□	□	□	△△	△
W4	□	□	□	□	△△
W5	□	□	□	□	□
	T1	T2	T3	T4	T5

<Fig. 2a>

W1	U	V ₁ ²	V ₁ ²	C	C
W2	U	U	V ₁ ³	V ₁ ²	C
W3	U	U	U	V ₁ ²	C
W4	U	U	U	U	V ₁ ³
W5	U	U	U	U	U
	T1	T2	T3	T4	T5

<Fig. 2b>

Variants such as V1, V2, V3 are introduced here because we often find that many variants coexist and one of them either ends up as the changed form(W1, W3) or there is a reduction in number of variants from V3 to V2(W2) or the variants are still in competition(W4) or no change occurs (W5).

Figure 2a includes a quantitative representation of such variants. In other

words, since the frequency rate of each variant could differ, the large or small triangles are drawn depending on this difference. If we convert this pyramidal visual representation faithfully into literal planar representation, we could have a more detailed description. Rather than using V_1^3 , which means just that there are three variants, we could translate the size of the variants into different sizes of letters, as in $\triangle_1 \triangle_2 \triangle_3 > V_1 V_2 V_3$. The result would be a table such as 2c below.

W1	U	$V_1 V_2$	$V_1 V_2$	C	C
W2	U	U	$V_1 V_2 V_3$	$V_1 V_2$	C
W3	U	U	U	$V_1 V_2$	C
W4	U	U	U	U	$V_1 V_2 V_3$
W5	U	U	U	U	U
	T1	T2	T3	T4	T5

(Fig. 2c)

As has been illustrated above, language change often includes stages of variants of different quantity appearing gradually and unifying into one final form. Such would be what we would like to describe in lexical diffusion. Previously lexical diffusion theory used only figures such as 1a, but perhaps a more realistic picture of lexical diffusion should include figures such as 2c.

The second is that as we have seen in examples in section 2, the orthography in many cases are hypercorrections imitating earlier forms, which therefore is often removed from actual pronunciation. This is especially common in section 3 where we have seen that the orthography in the variants that have been classified as being intermediate (those examples that are difficult to judge whether they are for or against the rule in question) and counter to the rule is so detached from the actual pronunciation that it is difficult to capture the main current of the change. But such phenomena should not be regarded as being in conflict with the theory of change by lexical diffusion. The reason is that the theory of lexical diffusion was proposed to mend the contradiction in the Neogrammarian thesis that change occurs abruptly without exception. Data with such counterexamples are therefore more appropriate for testing the theory. For further researches one may ask what would have caused such hypercorrection to be recorded so frequently, and also pursue a phonetically grounded functional approach to supply more motivated explanation to this study.

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